MINING & PETROLEUM STANDARD

AND

American Gas-Light Journal.

Publishing Office, Tribune Buildings, No. 1 Spruce street, corner of Nassau.

VOL. VI.—No. 17—WHOLE No. 125. NEW YORK, THURSDAY, MARCH 2, 1865. $3 PER ANNUM—IN ADVANCE

PETROLEUM.

THE OIL-BEARING ROCKS OF CANADA.

The extraordinary and interesting nature of the development which has been made within the last six years with regard to the production of mineral oil in Canada, has caused an unusual amount of inquiry on the subject, both on the part of scientific and commercial men. The out-crop of the corniferous limestone in Canada occupies a vast extent of country. Although, in some measure, concealed by their deposits of drift-clay, it has been found at many points to yield petroleum, and in such condition as to leave no doubt of its being derived from its native beds. The oil appears to have accumulated along the summit of a flat anticlinal arch running east and west throughout the entire peninsula. An upheaval of the paleoxoic rocks, such as this implies, would naturally be attended by subordinate effects, resulting in the formation of numerous fissures into which the oil would flow and be retained. In the oil bearing region of Pennsylvania, where the rocks are far more exposed at the surface than those of Canada, the principal supply of oil has been obtained from strata which exhibit evidences of greatest degrees of dislocation. The physical condition of the oil-bearing rocks may be adumbrated by glancing at the remarkable history of the flowing wells. On the 16th January, 1862, the first of these was struck in the flats of the Black Creek Valley, at the depth of 200 feet. Immediately afterwards, other flowing wells were discovered in rapid succession, more or less remotely situated; so that, in the month of September following, there were no fewer than twenty-five flowing wells in operation, besides two hundred worked by pumps. An idea, however imperfect, of the amount of oil yielded, may be gathered from the fact that Shaw's well alone produced 2,800,40 gallon barrels, exclusive of the immense quantity that had run to waste before the flow could be brought under control. That the fissures or veins yielding oil in such profusion are situated at or near the same level, having a more or less direct connection, is evident from the striking circumstance that all the flowing wells ceased simultaneously on the 9th January, 1863. These situated on the bush tract became exhausted about three months sooner. When the deep wells ceased to flow, the supply in the pumping wells became reduced. This general diminution of supply commenced towards the west end of the tract, and gradually extended in an easterly direction. In June, 1863, the supply increased, when several of the flowing wells which had ceased, recommenced yielding oil, although in comparatively limited quantities. This improvement, singular to say, took place in the reverse order of the previous failure, namely, from the east towards the west. All the facts ascertained prove the existence of a vast subterranean reservoir at the depth indicated, deriving its supplies from great distances, its several sections being connected though not without interruptions. It is thought that from the manner in which the oil and gas are generated, the first causes which have produced these reservoirs of oil are no longer in operation, and that once exhausted, like the coal-fields, they become exhausted for ever. In contravention of this theory, however, there is positive evidence that petroleum springs in some parts of the world, which have flowed from the earliest periods, still continue to yield as copiously as ever.—*From Mr. Day's English America.*

THE UNIVERSAL YANKEE.

If anybody is inclined to doubt the gumption and cuteness of the universal Yankee nation let them read the following: "Colonel Gowan of Boston, coming down from St. Petersburg, through Georgia and Circassia, when in the sea of Azof, stumbled upon some oil wells which the natives were working in a very indifferent way, and which the Colonel bought. He then came to Paris and London, organized a company, sent out men to work the wells, and ships to carry to London and Liverpool the products, and they are now paying handsome dividends. But what is more surprising still, the Colonel, in returning lately from the Black sea to Paris, stopped on the way at the Island of Samos, on the eastern shore of the Mediterranean, where he found and bought another oil well. What is still more curious, this well was spoken of by Herodotus, the great Greek historian, 450 years before Christ, and from that day to this no one has thought of turning to use this important discovery. Colonel Gowan has bought fifteen acres of ground at the ordinary price of land on the island.

SUGAR AND PETROLEUM.

It appears that the supply of petroleum may soon be expected to be produced in commercial quantities at Barbadoes. Mr. B. Walrond, who owns the Springfield Sugar Estate, in a letter to a friend in London, says his estate abounds in springs of the crude oil of excellent quality. Mr. Walrond has forwarded samples to New York, where it has been pronounced to be better than the best Pennsylvanian. Samples are also in the hands of two extensive London firms, who will no doubt introduce the article on the market should Mr. Walrond succeed in bringing it up in large quantities, for which purpose he intends to bore wells. If other planters in Barbadoes are fortunate enough to find a supply, the working of petroleum wells will form a remunerative safeguard against the effects of short crops of sugar and bad seasons.

A French scientific man some little time since applied the mineral oils to the carbonisation of wood used in building, his object being simply increased durability. The same process has since been tried on board ships in cases of infectious and epidemic diseases, such, for example, as that terrible scourge, the yellw fever, and it is said with great success. The subject has attracted much attention, and a communication thereon was made by Dr. Leroy de Mericourt to the Paris Academy of Medicine a few days since, in which the value of carbonisation in destroying infectious matter was placed so high that the Docter even threw out the hope that it might eventually be the means of doing away with long quarantines. It is only a short time since that mineral oil was announced as a complete cure for certain cutaneous diseases: if, in addition to this, it is found to be a means of reducing disease and suffering aboard ship, it will deserve a high place in the list of sanitary agents. In reference to its value as a medicament, it is asserted that while a Belgian doctor was applying it to cure the itch in man, a rope-maker, of Havre, named Narcisse Durecu, was treating mangy horses and dogs successfully by means of a wash composed of petroleum and a small quantity of oil of lavender. This is not at all surprising, seeing that the common treatment in the army is rubbing the animal with a mixture of equal parts of train-oil, turpentine, and spirits of tar, with sometimes a little sulphur.

THE COTTON FARM OIL COMPANY.—Takes its name from a tract of land in the neighborhood of the earliest oil discoveries. It is an organization which possesses many elements of stability, and is largely exempt from the contingencies of mere speculation. It has the fee simple of 2,533 acres of heavily timbered lands in two counties of Pennsylvania, adjoining Venango, viz: Warren on the north and Forest on the east, two regions oiled by the fissures along the tributaries of the Alleghany and the Clarion. The Cotter Farm tract—on which the Company has a profitable saw mill and other improvements—has a frontage on the Broken Straw Creek of more than 2 miles. Along the bank of this creek runs the Philadelphia and Erie railroad. Ravines break through the hills, and offer numerous favorite localities for wells. In Forest county, the Company's property, 1,167 acres, is on a stream whose reputation for oils is daily increasing, viz: North Salmon creek, Tionesta township.

THE ODOUR OF FLOWERS, AND THE ENFLEURAGE PROCESS.

The odours of flowers do not, as a general rule, exist in them as a store or in a gland, but they are developed as an exhalation. While the flower breathes it yields fragrance, but kill the flower, and fragrance ceases. It has not been ascertained when the discovery was made of condensing, as it were, the breath of the flower during life; what we know now is, that if a living flower be placed near to butter, grease, animal fat, or oil, these bodies absorb the odour given off by the blossom, and in turn themselves become fragrant. If we spread fresh unsalted butter upon the inside of two dessert-plates, and then fill one of the plates with gathered fragrant blossoms of clematis, covering them over with the second greased plate, we shall find that after twenty-four hours the grease has become fragrant. The blossoms, though separated from the parent stem, do not die for some time, but live and exhale odour, which is absorbed by the fat. To remove the odour from the fat, the fat must be scraped off the plates and put into alcohol; the odour then leaves the grease and enters into the spirit, which thus becomes "scent," and the grease again becomes odourless. The flower farmers of the Var follow precisely this method on a very large scale, with but little practical variation, with the following flowers: rose, orange, acacia, violet jasmine, tuberose, and jonquil. The process is termed, as said before, enfleurage or inflowering. In the valley of the Var there are acres of jasmine, of tuberose, of violets, and the other flowers named. In due season the air is laden with fragrance—the flower harvest is at hand. Women and children gather the blossoms, which they place in little panniers like fishermen's baskets hung over the shoulders. They are then carried to the laboratory of flowers and weighed. In the laboratory the harvest of flowers has been anticipated. During the previous winter great quantities of grease

lard, and beef-suet have been collected, melted, washed, and clarified. The great success of this process depends on the absolute purity of the grease employed, and no pains are spared to this end. In each laboratory there are several thousand *chassis* (sashes), or framed glasses, upon which the grease to be scented is spread, and upon this grease the blossoms are sprinkled or laid. The *chasse en verre* is, in fact, a frame with a glass in it as near as possible like a window-sash, only that the frame is two inches thicker, so that when one chasse is placed on another, there is a space of four inches between every two glasses, thus allowing room for blossoms. Every chasse, or sash, is about two feet long by eighteen inches broad. The flower blossoms are changed every day, or every other day, as is convenient to the general work of the laboratory or flowering of the plants. The same grease, however, remains in the chasse so long as the particular plant being used yields blossoms. Each time the flowers are put on, the grease is "worked"—that is, serrated with a knife—so as to offer a fresh surface of grease to absorb odour. The grease being inflowered in this way for three weeks or more—in fact so long as the plants produce blossoms, is at last scraped off the chasse, melted, strained, and poured into tin canisters.—*Dr. Piesse's Lecture.*

MINING.

A RICH QUARTZ STRIKE.

According to the Placer Herald, Messrs. Lowry & Mitchel, two "strapped" miners from Reese river, while prospecting, week before last, for surface diggins, on Quartz Prairie, three and a half miles north of Auburn, near the Nevada road, struck upon some rotten quartz and earth that was rich with gold. Stimulated by the discovery they continued their labor, and throughout Friday and Saturday took out rock and dirt from a cut, but two feet wide and five or six feet in length, of the estimated value of $3,000. Up to Thursday evening rock had been taken out estimated to be worth $6,000, with the vein showing the same rich indications.

The discovery naturally created a good deal of excitement and visitors flocked to the locality from all the surrounding country. One interest was sold for $1,300 on the second day after the discovery. Extensions of the original discovery have been taken up, in the hope that the good thing is not all confined to one spot. Quartz Prairie is a locality well known to the miners of that section. It is high and rolling, the soil being completely mixed with small particles of quartz, supposed to have been worn and scattered from a prominent vein that runs through the prairie from north to south. At the northern end, upon a small hill, there is a heavy chimney of quartz, and in this vicinity the rich vein of quartz spoken of was found.

The above discovery affords another evidence of the almost illimitable extent of the mineral resources of California, yet to be developed, inasmuch as it has been made in the immediate vicinity of one of the earliest placers ever worked in this State—near the head of Auburn Ravine, a locality which has been famous since 1849. The discovery will undoubtedly give a new impetus to mining, especially quartz mining in that vicinity. The immense amount of gold that has been taken out of Auburn Ravine, and its peculiar character, renders it almost a matter of certainty that valuable quartz mines must certainly be developed near by. All that is wanted is thorough work, and deep, such as has recently given such a renewed impetus to mining in Grass Valley and elsewhere, where similar enterprise has been developed.

A MINING PHENOMENON.

The effect of a current of warm air issuing from a mine in a cold day is sometimes quite remarkable, often giving the mouth of the mine the appearance of a huge steam discharge pipe. The phenomena is properly described, as follows, by the Virginia Union, in an account of a recent visit to the Savage mine near Virginia city:

We stopped a few minutes to watch the operations at the old hoisting works of the Company. Every moment or so a car, loaded with ore or waste dirt, would come rushing up the shaft to the surface, to be rolled out and sent thundering down the dump, where numerous heavy quartz teams were waiting to transport the ore to the mills. But to one uninitiated in such things the strangest phenomenon was the immense volume of steam which came rushing forcibly up and out the month of the shaft, enveloping the brakeman and the hoisting machinery in a dense fog, which, condensing, kept everything dripping with water. One would naturally suppose that some heavy steam machine was blowing off away down in the bowels of the earth. The philosophy of it is simply this, which we would state for the benefit of those who are not familiar with such things: In all shafts consisting of two or more compartments, a strong current of air invariably and unceasingly pours down one compartment and up another. Even when there is no air stirring on the surface, this current will pour up with such force that a newspaper, or other article, will not drop down that part of the shaft; and if thrown will immediately return to the surface. The air, in the depths of the mine, is many degrees warmer than at the surface, and like all heated air has a tendency to rise; therefore, gathering in from the different drifts and chambers, it finds egress through the shaft—the supply and circulation being kept up by air shafts in different parts of the mine. This warm air, on arriving at the surface during the cold weather, and especially on a frosty day like that on which we made the visit in question, assumes the form of steam, and being condensed by the cold air, drips from everything which it envelops. Of course in warm weather none of this steam would be seen, for obvious reasons. It is decidedly an interesting sight to stand and see car after car come swiftly up to the surface, on the "cage," or little square platform, at the end of the big rope; and occasionally, while you are looking, a man will come bouncing up on a cage from the bowels of the earth, with startling suddenness, reminding you of one of those wonderful little painted boxes to be seen at any toy shop, which, if you unhook the lid, it flies back and a hideous little witch pops up before your astonished vision.

THE EXTRACTION OF GOLD AND SILVER FROM THEIR ORES.

It is not to be denied that since the discovery of gold in California, the science of Metallurgy has received an immense impetus. New processes without number have been introduced for the extraction of gold and silver, which have been tried, and in all but a very few cases abandoned. But still how crude and imperfect are the best of processes at present employed. When it is remembered that the annual product of the precious metals on this coast exceed fifty millions of dollars per annum, an idea of the value of the quantity lost may be formed.

WHAT IS WANTED.

In quartz mining for gold, the desideratum appears to be some agent that will force the imperceptibly fine particles of pulverized gold into contact with the mercury, without separating the mercury into such minute particles that it floats away with the tailings. It is a demonstrated fact that grinding mercury, or stamping it too much, causes an immense loss of itself, and the metal it is employed to collect. This fact any mill man may prove himself, by placing a pan at the end of the troughs used for carrying off his tailings. It matters not how long these troughs are, how much mercurial surface, or how many rifles, hides, blankets or gunny-bags, they contain, in less than an hour, if he washes out the sedimentary matter in the pan, carefully, before it shall be half accomplished he will find on the edge of the particles of sand, a white fringe, which if he rubs with his finger will be speedily transformed into globules of the mercury. This experiment we have tested in a thousand cases with one invariable result. Here is the greatest cause of loss in quartz mining.

LOSS IN PLACER MINING.

In placer mining where, it is true, gold cannot be said to exist as in ore, a still greater loss is experienced, through not bringing the gold in contact with mercury. Much of the gold in all the alluvial deposits exists in such minute specks that though gold is nineteen times as heavy as water, these specks are so minute that they will float on the surface of water. Every miner is well aware that fine specks of gold float. Whoever will examine a quantity of gold as it is obtained from the placer diggings, will observe that it is nearly always in rounded, more or less smoothened grains. Now every one knows that gold when taken from the quartz, is always rough, with minute particles sticking out all over the grains, like "the quills on the fretful porcupine." These little particles are never recovered in the soil washed for gold. They exist, for gold is indestructable.

WHAT BECOMES OF THEM—INTERESTING EXPERIMENT.

As a proof of what becomes of these particles, during an entire summer we made experiments on the dirty water that run through a flume in Tuolumne county, and when the miners in the large hydraulic claims were working, by evaporating a gallon of this dirty water we could at any time obtain from one to ten cents worth of gold in the sedimentary matter. If some cheap process could be introduced for working the "slum," as it is termed, that accumulates in the vicinity of rich placer diggings, fortunes could be realized by the operation.—*Grass Valley Union.*

THE QUICKSILVER MINING COMPANY.

Working Account, from 1st November, 1863, to 31st December, 1864.

	GOLD.	CURRENCY.
Cr. By value of product, per general financial statement,	$1,775,058 61	171,539 04
Dr. To Current Expenses, viz.:		
Mining Expenses and Materials, $645,046 94		
General Expenses, Freight and Insurance,	19,131 53	23,740 13
Interest on Bonds and General Account,	59,267 24	29,884 15
Legal Expenses,	6,663 18	27,628 04
Taxes, California & Pennsylvania,	8,113 49	15,255 90
Total Current Expenses,	$738,222 38	96,508 27
Profits for 14 Months,	$1,036,836 23	$75,030 77

WALTER E. LAWTON,
Treasurer of the Quicksilver Mining Co.

REPORT OF THE OPHIR MINING COMPANY OF NEVADA.

The Ophir Mining Company held its annual meeting on Wednesday, December 21. We obtain the following figures from the Secretary's report. The ores extracted from the mine in 1864 were:

First class	421 tons
Second class	3,355
Third class	14,842 "
Total	18,609 "

Of ore, 8,619 tons were sent to the Ophir Reduction Works, 3,545 tons to the Woodworth mill, and 964 tons to the New River mill. The quantity of ore now on hand is 8,147 tons. At the Ophir Reduction Works the ores were reduced by the barrel and patio processes. The following figures represent the workings of the two processes:

	Tons.	Value.	Yield.	Cost per ton.
Barrel	4,554	$606,653	$519,503	$32 05
Patio	2,920	258,289	248,947	32 37
Total	7,474	$864,742	$768,650	

The following is a recapitulation of the receipts for 1864:

Balance on hand at last annual statement	$4,974 08
Receipts in Nevada, per statement A	107,617 58
Receipts at San Francisco Office, per Statement B	899,778 16

Total receipts	$1,012,364 81
The disbursements were:	
Mining cost, per statement C	$459,712 15
Washoe Reduction Works, per statement D	269,344 25
Woodworth Mill, per statement E	50,757 38
New mill on Carson river, per statement F.	52,874 02
Bridge over Washoe lake, per statement G.	6,338 60
Sundry payments in Nevada, per statement H	5,154 16
Sundry disbursements in San Francisco, per statement I (dividend No. 22)	67,200 00
Sundries	99,172 50
Balance on hand	10,817 75
Total	$1,012,364 81
The assets are thus put down:	
Real and personal property in Washoe Valley	$346,426 26
On Carson river	127,012 00
At the mine, exclusive of the mine itself, 4,000 tons fourth class ore, lying at the mine, estimated value $2,50 per ton.	50,929 50
	10,000 00
Total, per inventory on file	$534,367 76
Claim against J. O'Farrell & Co. (reported Dec., 1863)	10,533 87
Claim against W. W. Palmer	8,000 00
Office fixtures	500 00
Cash on hand	10,817 75
Total assets	$564,219 38
The liabilities are:	
Note for new mill on river	$7,500 00
Note for new machinery	8,215 27
Due for President's salary	2 400 00
Balance	546,104 11
Total	$564,219 38

THE ENGLISH GOLD, SILVER AND BRONZE COINAGE OF 1863.

It is an extraordinary fact that the annual return of work done at her Majesty's Mint seldom or never makes its appearance until seven-twelfths of a year after the date to which that return extends. One would suppose that most careful note is daily made in that important establishment of every piece of money struck therein, and that the casting up of the total number of coins issued between the 1st of January and the 31st of December in any one year might be accomplished in less than seven months, even without the aid of Mr. Babbage or his machine. We do not mean to assert that the public suffer by the delay, or that it is of serious moment to anybody but impatient members of the Statistical Society. It is, however, "unbusiness like," and it gives colour and form to the censures so frequently and freely passed upon Government establishments and the officials connected with them. Let us hope for better things next year. Mr. Peel, whose name appears upon the coinage return for 1863 which now lies before us at present, or his successor, may feel disposed, perhaps, after this notice, to "move earlier" in the coming season than in the month of June or an account of the "monies of the realm" coined from the 1st of January to the 31st of December, 1864. The public of our day prefer the speed of the railway train to the "snail's gallop" of the road waggon; and those who move slowly must be driven. Let it not be imagined that we desire to cast imputations upon the authorities of the Mint, or to blame them for inactivity. On the contrary, the return of which we speak would justify a certain amount of praise being awarded them. The quantity of metal, precious and otherwise, converted into coin of various denominations at that establishment last year, is very large, as will be seen from the following abstract. The number of ounces of gold transformed into sovereigns and half sovereigns was 1,696 939·01. These produced of sovereigns 5,291,669, and half-sovereigns 1,371,574. Of silver converted into florins we have 341,280·00 ounces yielding 938,520 pieces. Of silver afterwards issued in the form of shillings the quantity used at the Mint in 1863 was 156,240·00, ounces, producing 859,320 pieces of money. The number of sixpences struck from 44,640·00 ounces was 491,040, and the number of threepences from 43,404·00 ounces, 954 888. For the Queen's Maunday money 516 ounces were stamped in the form silver fourpences, twopences, and pence into 16,830 coins.

Of Bronze 340 tons weight was used for the purposes of coinage, and this produced 28,062,720 pence, 15,948,800 half pence, and 1,433,600 farthings. The total nominal value of this large amount of the subsidiary denominations of money was £151,648. In addition to the foregoing, something like 4,000,000 of silver and bronze coins were struck for circulation in the British colony of Hong Kong.

The total number of coins of all denominations produced during the past year by the Royal Mint was therefore 59,998 961; this gives an average of rather more than eleven hundred thousand five hundred coins per week, and is not far off 200 000 per day.

It cannot be said, therefore, that the men or the machinery of that place have been idle during the year 1863, and we only have to complain of the very tardy appearance of the return from which the above figures have been collated. It is neither just to the public nor to the money manufactory itself, that the doings of the Mint should so long remain concealed under the dark shadow of official apathy, or by the mysterious but potent influence of RED-TAPE.—*London Artizan*

REMARKABLE SILVER MINES IN SOUTHERN UTAH.

The following account of marvelously rich silver mines in Southern Utah is from the St. Joseph Herald and Tribune of November 1st: "Mr. John Harris, of this city has recently returned from Meadow Valley, Utah Territory, where he has been for several months past. This valley is about 300 miles in a southerly direction from Great Salt Lake City, and about 100 miles from head of navigation on the Colorado river. The silver mines located here are of incalculable value, the ore being so rich as to be malleable under the hammer. Assays made in San Francisco, Salt Lake City and New York, prove it to be worth more than the famous Washoe lodes. Gen. Connor is keenly alive to the wealth of this section, and has located his great road from Salt Lake City to the Colorado river, through it. Brigham Young will bring his people from Europe up this river hereafter, and not through this State. Many circumstances indicate the coming importance of these mines as better than any before known."

COAL IN FRANCE

In excavating for the Bourbonnais Railway, says the *Progres de Lyon*, at a distance of 200 or 300 yards above L'Arbresle, a small town about 15 miles from Lyons, a seam of coal, which is said to be good, has been laid open. This accidental discovery is considered highly important, as indicating a coal deposit in this neighborhood at no great distance from the soil. France is not wanting in coal, but it exists in many cases where no economical means of transport are yet established. No doubt good coal in the neighborhood of such an important manufacturing place as Lyons would be a great boon, but all the world knows how deceptive are such discoveries as the one referred to, and we have not a geological map of France at hand to tell us whether there is anything new in the existence of coal in that quarter. Such facts, however, deserve to be noted, now that the import of English coal into France has grown so enormously.—*Journal of the Society of Arts.*

ASSAYS OF SILVER AND SALT.

Orlando Jennings, an assayer at Austin, Reese river, furnishes the Reese River Reveille the following, which is valuable, chiefly, as furnishing the comparative values, for metallurgical uses, the salt obtained from various localities in the Reese River and Humboldt regions:

The humid or volumertical assay of silver bullion is now adopted in the mints and assay offices as being correct and expeditious.

It is done by preparing a solution of common salt (chloride of sodium) of a known strength or density, so that a given measure will precipitate a gramme, or ten grains, of pure silver from a nitric solution.

Such is the distinctness of the termination of the chemical reaction and precipitation, that the fineness of a bar of bullion may be determined to the one thousandth part, and closer if it was desirable.

The determination of the strength of chloride of sodium is precisely the converse of the above operation. One hundred parts of pure silver requires fifty-four and one-tenth parts of pure salt to precipitate it from its solution.

Experiment: Weigh .541 gramme of the salt to be tried, and dissolve in about one hundred grammes of pure water; then dissolve one gramme of pure silver in five grammes of nitric acid, and dilute to one hundred cubic centimetres, until the last drop ceases to produce a precipitate, and the number of cubic centimetres, deducted from one hundred, leave the per cent. of chlorine.

The amount of chlorine contained in any salt determines its value for metallurgical purposes. The article obtained from the different localities and used in this place is found to be of great purity. An average sample from the Smoky Valley Company's warehouse shows ·909 per cent. and after drying .95 and .96—choice samples 97 per cent. Sand, and some sulphate of soda was found to be the impurities. A sample obtained from Messrs. Morgan & Muncey's mill, said to be from Sand Springs, was 96 per cent. Dry table salt from Humboldt 99 ½ per cent. The salt used about here in the mills probably contains five per cent. of water, more or less. If an excess of salt is used in amalgamating, the mercury becomes divided into numerous minute globules, which are reunited with difficulty and are likely to pass off with the sand and occasion loss. When mercury is boiled with water in this state of division, a considerable quantity of the metal passes over with the steam.

HOT WATER IN MINES.

It would seem to be the fate of the Ophir Company to be more plagued with water than any other company in our mines, says the Virginia City Enterprise. They had just succeeded in pumping out the last great influx, and had begun drifting again, when another huge subterranean reservoir was tapped. It was struck at a height of about 25 feet above the shaft, and rushed in such volumes that it was with difficulty that the workmen were able to escape being overwhelmed and drowned. The water had risen in the morning to the height of 160 feet. What is most singular is the fact that the water is so hot that to hold one's hand in it is painful. The rush of water was doubtless from a "pocket," and, we presume, will shortly be exhausted by a diligent use of the pumps.

AN OSSIFIED MAN.—At Painesville, Ohio, there is an ossified man whose bones have become limestone. He cannot move a single joint or open his jaws, and is totally blind. Food is placed in his mouth, and nature carries it into his stomach. He lies upon his side, upon a low bed or couch, which serves also as a litter, with his feet drawn up somewhat, and his right hand caught up near his shoulder; lies thus all day long, shifting his position but once in twenty-four hours, when he is turned over on the other side. While he is thus completely ossified—a human block of limestone, as it were—his skin retains its normal character and condition, and discharges its functions regularly.

GAS.

WOOD GAS.

417 Walnut street, Philadelphia.

Col. A. J. White,
Engineer Metropolitan Gas Works:

Dear Sir;—I have been unable to analyze the accounts of working of Wood Gas further back than 1857, in the limited time I assigned for their examination; the results of six year's working will give a very fair practical result. Over 90,000,000 cubic feet of Wood Gas were manufactured in cellular retorts in five years, from 1857 to 1863, of which the average cost of manufacture was 87 71·100 cents per thousand. The least annual average cost was for 1858, and was 81 52·100 cents per thousand. The production of 119,780,000 cubic feet, faom 11,880 cords of wood, (including the working of 1863, when cost of labor and materials were increased,) gave an annual average cost of 90 57·100 cents per thousand. The greatest annual cost was in 1863, being $1,01 31·100 per thousand, whilst the cost of our coal gas somewhat exceeded $1,20 per thousand. The wood employed was chiefly Jersey Shore Pine, unseasoned and of indifferent quality, the great demand for brickyard purposes keeping the average cost at over $5,60 per cord.

The amount of gas produced from this wood was 10,000 cubic feet per cord for the whole period of six years. Experimental trials upon this same quality of wood, when seasoned and dried, as well as upon other varieties of wood, have been made, in which much better results have been obtained, but the financial result of the general working better suits our purpose.

The time required to work off the charges is greatly dependent upon the size of the wood employed—round logs from 6 in. to 8 in. diameter, require from 6 to 8 hours, but split into quarters can be fully charred in half the time, by further reducing the size the time for complete carbonization can be reduced if desired to one or two hours, but this latter mode of working adds greatly to the proportionate cost of labor, and should only be resorted to in cases of emergency, in which it becomes necessary to double or treble the manufacturing capacity of the works for a short period. The most economical working with us, was made with 3½ or 4 hour charges, when a retort holding from 100 to 150 lbs. of wood will work off from 3 to 5000 cubic feet of gas per day, and may be made to work for a day or two at the rate of 10,000 cubic feet per day. We have made as high as 36,000 cubic feet per day from a bed of retorts, (8 feet 6 inches in the fire,) although their average working on four hour charges, was only about 15,000 cubic feet per day.

Pine Wood works off more easily than oak, maple or hemlock, but the gas from either of the others is usually superior to that obtained from even ordinary "fat pine." The illuminating power is about ten per cent. greater than that obtainable from the best Pittsburgh coal, but the gas requires a peculiar burner to develop its illuminating power to best advantage.

The production of saleable charcoal varies with the size of the wood; from ordinary four hour charges we obtained about 18 bushels per cord, suitable for sale—with 8 hour charges a larger quantity, whilst with 2 hour charges the whole product was too small to compete at any price with "Jersey charcoal."

Charcoal produced by any process in which the complete extraction of the gases is an object, is always "weak" and unfit for many purposes in the arts, it ignites easily, but burns away much more rapidly than, the charcoal made in heaps. Should it possess a great commercial value, its quality can be improved by sacrificing a certain amount of make of gas per pound.

Purification by lime is absolutely necessary in the manufacture of Wood Gas; the impurity is carbonic acid, its quantity can be greatly diminished by properly drying the wood, and by the use of low heats in the generation of the gas.

To ensure proper purification with ordinary unseasoned pine, it is best to calculate upon one bushel of slaked lime for each 650 cubic feet of gas passing the meter, for gas produced from dry seasoned wood, this gives a large excess of surface, the amount absolutely necessary to be provided under ordinary circumstances with hard wood, should be one bushel of slaked lime for 1000 cubic feet as purified.

To purify easily and certainly, there should be allowed (of entire surface of all the baskets in 3 boxes of series,) 8 square feet of surface for every 1000 cubic feet of gas as purified—this requires three shifts of seal per day so as to use up all the lime.

A set of four purifiers, (three in use at a time,) four feet square with four baskets each, will purify 24,000 cubic feet of gas daily, or the product of four retorts on full, or six retorts on moderate working. Full economy would perhaps require the size of purifiers to be doubled, say 4 feet by 8 feet, and the shift made about three times in two days.

The retorts are made of various dimensions—those mostly used have a large cell of form of D retort, 24 inches wide by 18 inches high, the smaller cells, eight or ten in number, are arranged in the thickness of flat side or bottom, and occupy a depth of 6 inches, so that the whole retort is circumscribed by a rectangle of 24 inches in each direction. The length employed is very various, and is governed by the length of wood obtainable, for this market, either 4 feet 4 inches, or 8 feet 8 inches in the fire. In some of the western and southern towns they were made 6 feet long, and the wood was ordered cut to suit. They are set very variously—we have always employed one plan of oven setting, with one, two or three retorts to the fire.

The weight of the 8 feet 8 inch retorts has averaged about 4,000 pounds—the 4 feet 4 inches, 2,500 pounds—no mouth-pieces are employed.

For fuel we have used coke, coal and wood; for the most part coke, although we employed wood exclusively for fuel for an entire year.

Very truly yours,

C. M. Cresson.

THE WAR UPON THE GAS COMPANIES OF THE CITY OF LONDON.

We see by the English Press, that a tirade is being waged against the Gas Companies of London and its environs. More than two-thirds of the complaints against Gas Companies is the result of ignorance—absolute ignorance of all that is incident in the manufacture of gas, or of the immense amount of expense attendant upon its production. We give below, an article taken from the London Globe.

"The consumers of gas are now suffering from the effects of that oppressive monopoly which has already existed for some years. It will be recollected that five or six years since the different companies supplying the metropolis with gas met in secret conclave, and quietly agreed that, for the future, that there should be no competition amongst themselves. A map of the metropolis was introduced, upon which was marked out a special district for each, over which area the company to which it was assigned was to have unlimited control. Although the district might be intersected with the mains and supply pipes of other companies, not a foot of gas was to be allowed to pass through them. At the same congress, if we are correctly advised, the expenditure of the different companies in competition and in opposition to each other's bills was also brought forward. "Bygones were to be bygones," and it was decided that their former expenditure should be treated as capital, upon which the consumer would have to pay. During this long negotiation the gas consumers were kept in complete ignorance of what was going on; and the first intimation of it which they had, was the cool announcement that, although they had previously taken their gas from such and such a company, for the future they must depend entirely for their supply upon another source. The public were naturally exceedingly indignant, but what was the use of their indignation. They were completely at the mercy of the monopolists who, now that they had them in their power, treated them with the greatest contumely. Their remonstrances were disregarded, and their complaints unheeded. The price of gas was raised, whilst its quality was not equal to what it was before. Some of the parishes took up the question, and Sir John Shelley fought the battle of the gas consumers manfully. But it was a very uphill fight. The companies had almost unlimited capital to fall back upon, whilst Sir John Shelley had only to rely upon such sums as the several parishes subscribed in a most niggardly manner. However, as much was screwed out of the companies as possible, and they were tied down to allow inspection of their accounts, to have their gas tested, and when their dividends should amount to more than 10 per cent. the surplus should be applied for the benefit of the consumers by reducing the price of the gas. But this wholesome provision has been wholly disregarded, or rather evaded, by the companies capitalising profits; so that, whilst several of them are nominally paying 10 per cent., they are really rejoicing in 20 per cent. dividends. But of all the companies, that which is now most complained of is the Great Western, which supplies the districts of Paddington, Notting Hill, &c. The present charge for gas is 6s. per 1,000 cubic feet, with the promise that when the summer comes, and but little gas is consumed the price will be reduced to 5s. 1d. per 1,000 feet. The reason assigned for charging this high price is that the gas is made from Cannel coal; that it is much purer than gas made from the ordinary coal; that it has a greater illuminating power, is freer from impurities, and, in fact, that it is really more economical than the gas charged at a lower price supplied by the other companies. This is now loudly denied by the customers of the Great Western Gas Company. They allege that the gas is deficient in illuminating power, and that it is charged with impurities, and they consider that the gas supplied by the cheaper companies is actually better than that sent from the gas works of the Great Western. If there were only one or two complaints one might be led to imagine that there was some exaggeration in these outcries, and that they emanated from a few individuals of a discontented turn of mind: but the daily papers teem with remonstrances as to the treatment the consumers receive from this company. In the meantime the directors turn a deaf ear to all complaints. The consumers, therefore, must either take the gas just as it is, or go without. They have no option. Gas, however, is now no longer a luxury. It has become, to the tradesman especially, as much a necessity as the food he eats or the water he drinks. To be without this mode of lighting these long and dark days would be tantamount to closing business altogether.—The public are therefore completely at the mercy of the gas companies. They may struggle, complain, write, vociferate, and threaten, but all in vain—the gas companies know that they have their victim thoroughly bound round with such cords as would defy the ingenuity of even the Davenport Brothers to loosen. We are sorry for the consumers, but they have only themselves to blame. Had they supported Sir John Shelley and those who worked with him as they ought to have done, better terms would have been obtained in Parliament, and the companies would not have been in the independent positions in which they now are. It is however said that there is no wrong without a remedy of some sort or other, and we perceive that it is proposed by a good many of the ill used and naturally discontented consumers to commence a fresh movement against the companies. We cannot but applaud this determination—only by way of caution we would just give the promoters of the movement one word of advice, and that is, not to proceed to open hostilities until they have the sinews of war in hand. To fight the gas companies is not a question of hundreds, but of thousands of pounds. The companies are bound by solemn league and covenant to combine together to resist any aggression, no matter from what source it may come. They have immense sums at their command, have considerable parliamentary influence, and will fight to the last. It would, therefore, be folly to commence an attack without being able to continue it to the last. To be defeated would be to make matters worse than they are at present, because the companies would, triumphing in their strength, immediately calculate the cost they had been put to, then capitalise the amount with

interest, and increase the price of gas until the consumers shall have paid their extraordinary outlay some ten times over. If the metropolis really is serious in engaging in a parliamentary contest with the companies, the first step to be taken is to coalesce with the Corporation of the city of London, who are nearly ready for action. They only require a little looking up and it is believed that they will join in the fight, as the citizens of London are as indignant with the Central Gas Consumers' Company as the inhabitants of the West End are with the Great Western Company. The city of London is a valuable ally, but a dangerous enemy."

What a senseless crusade against organizations who manufacture an article that is indispensible to them.—They were in comparative darkness—streets, workshops and dwellings. Enterprising and energetic men of the community associate themselves together and raise means to construct works that will produce an article that will render this darkness equal to the light of day. To do this, money is not only necessary, but intelligence—and intelligence of a high order, too. Their efforts are applauded by a *grateful* people, who look forward to a time when they shall be relieved from flickering candle and the smoky lamp. The time arrives and pæons of praise is sung to the projectors and perfectors of this great public benefit. A year passes away, and the enjoyment of a good gas light has been experienced and appreciated. Suddenly a howl is heard from this same *grateful* people; "bad gas!" "soulless corporation!" "immense dividends!" and many like expressions are heard, all of which in nine-tenths of the cases where such things are done, are totally groundless and without the slightest shadow of truth. All communities must have their croakers.

WATER.

EXTRACT FROM THE ANNUAL REPORT OF THE CHIEF ENGINEER OF THE WATER DEPARTMENT, OF THE CITY OF PHILADELPHIA, FOR THE YEAR 1864:

To the Select and Common Councils of the City of Philadelphia:

Gentlemen:—In considering the water supply of a great city the first essential is quality, and next to that in importance is quantity. It becomes the duty of the Department to call your attention to both these requisites at the present time.

QUANTITY OF WATER.

The demand for water has been rapidly increasing, and is now beyond the ordinary capacity of the works. The amount supplied to the City since consolidation has been as follows:

	Amount pumped per Annum. gallons.	Daily Average. gallons
1854,	4,270,786,912	11,700,786
1855,	4,876,528,323	13,240,323
1856,	5,685,933,976	15,671,963
1857,	6,317,903,116	17,309,323
1858,	6,839,425,959	18,738,153
1859,	7,168,031,647	19,638,442
1860,	7,465,740,277	20,382,064
1861,	7,596,079,988	20,728,985
1862.	7,932,886,423	21,733,935
1863,	9,495,775,141	26,024,041
1864,	9,307,007,849	25,489,451

In regard to 1863, the amount pumped was estimated, as all the counters on the pumps were either out of order or disconnected, and the amount is much greater than that actually pumped. The average daily amount probably did not exceed 23,500,000 gallons.

The daily pumping capacity of the works are as follows:

Fairmount, Old Works,	12,000,000 gallons.
Fairmount, New Works,	16,000,000 "
Total,	28,000,000 gallons

This is during the ordinary stages of the water, but for a period of time in the summer, say three weeks, the capacity is reduced to about one-half, (14,000,000 gallons,) and want of a larger ascending main, the greatest amount that can be supplied by these works, is twenty-four millions per day.

Recapitulation of the capacity of the Works:

Fairmount Works,	24,000,000 gallons.
Schuylkill Works,	8,000,000 "
Deleware Works,	3,000,000 "
24th Ward Works,	1,000,000 "
Total capacity, per day,	36,000,000 "

During the past summer, the greatest consumption in any one day was 43,250,000 gallons, this continued for three days, reducing our reservoirs about five feet; had the demand been as great for several days more, the reservoirs would have been emptied and the City have felt the want of water. A large proportion of this amount was no doubt wasted, notwithstanding all the care the Department exercised to prevent it. At such seasons an abundant supply of water is more than a luxury, it is a necessity, for promoting the health and comfort of a large city.

From the above statements, you will observe that we are deficient in pumping capacity during the seasons of greatest demand, or when the water is low in the Schuylkill.

In storage capacity there is an equal deficiency. The contents of our reservoirs are:

Fairmount, (four reservoirs,)	27,000,000 gallons.
Corinthian Avenue, (one reservoir,)	40,000,000 "
Spring Garden, (two reservoirs,)	9,000,000 "
Kensington, (two reservoirs,)	9,000,000 "
Making a total capacity of	85,000,000 "

Not three days mean average supply, or two days of the greatest demand.

It is therefore evident that the City will require additional steam and water power pumping machinery, and also greater reservoir capacity.

RUNNING EXPENSES OF FAIRMOUNT WORKS.

Salaries of Engineers and labor,	$4,199 46
Gas for lighting,	752 59
54 tons of coal, for warming Works, at average price, $10 08½ per ton,	544 50
446½ gallons of oil,	597 08
1,629 pounds of tallow,	265 50
Packing and small stores,	1,361 52
Repairs,	7,077 21
	$14,797 86
Interest on cost of Works and Water Power,	36,000 00
	$50,797 86
Cost of raising water into reservoir, per million gallons, including interest on cost of Works,	$8 50
Not including interest on cost of Works,	2 48
Cost of raising water per million gallons, one foot high, including interest on cost of Works,	08½
Not including interest on cost of Works,	02 4-10

RUNNING EXPENSES OF DELEWARE WORKS.

Salaries of Engineers, firemen, etc,	$5,579 74
2,215½ tons of coal, at average price of $8 54 per ton,	18,828 72
115 gallons of oil, at	143 75
1065 pounds of tallow, at	178 75
Coal oil for lighting works,	95 90
Packing and small stores,	226 92
Repairs,	3,054 66
	$28,108 44
Interest on cost of works, ($150,000,)	9,000 00
	$37,108 44
Cost of raising water into reservoir, per million gallons, including interest on cost of works,	$34 01
Not including interest on cost of works,	25 67
Cost of raising water per million gallons one foot high, including interest on cost of works,	30 3-10 cts.
Not including interest on cost of works,	22 9-10 "

RUNNING EXPENSES OF THE TWENTY-FOURTH WARD WORKS.

Salaries of engineers and firemen,	$3,720 54
1,129 7-20 tons of coal, at av'g price, $9 29¼ per ton,	10,496 63
374 pounds of tallow, at	55 56
Packing and small stores,	226 92
Coal oil, for lighting,	161 20
Repairs,	4,519 67
	$19,180 52
Interest on cost of works, $55,000,)	3,300 00
	$22,480 52
Cost of raising water into stand pipe, per million gallons, including interest on cost of works,	$37 60
Not including interest on cost of works,	36 89
Cost of raising water, per million gallons one foot high, including interest on cost of works,	16 3-10 cts.
Not including interest on cost of works,	16 "

TOTAL QUANTITY OF WATER PUMPED.

The amount of water pumped during the year, is less than reported for 1863; this is no doubt an error. The increase from 1862 to 1863, is very much greater than at any other period of the operation of the Works; and notwithstanding the increased number of water takers, and augmented revenue of 1864 over 1863, the amount of water pumped is less by 191,767,292 gallons. For these reasons, in this report the pumping accounts of 1863 are disregarded, and comparisons made with those of 1861. The greatest amount of water was furnished in May, June, July and August. The lowest daily average for a month was in December—20,392,877 gallons; the greatest daily average was in July—31,512,784 gallons.

TOTAL QUANTITY OF WATER PUMPED BY ALL THE WORKS DURING THE YEAR 1864.

Months.	Gallons pumped each month.	Average number of gallons pumped per day.
January,	778,217,129	25,103,778
February,	691,145,840	23,832,615
March,	644,677,940	20,796,062
April,	643,756,338	21,458,544
May,	858,887,187	27,706,039
June	789,021,733	26,300,724
July,	976,896,310	31,512,784
August,	892,153,928	28,779,158
September,	817,416,808	27,247,227
October,	768,806,574	24,800,212
November,	793,838,864	26,461,295
December,	632,189,198	20,392,877
Total,	9,307,007,849	25,498,651

Of the above, the following amounts were pumped by each of the works:

	Total.	Daily average.
Fairmount,	5,970,801,329	16,358,360
Schuylkill,	1,725,444,660	4,727,245
Deleware,	1,090,884,060	2,988,723
Twenty fourth Ward,	519,877,800	1,424,323

COMPARATIVE ECONOMY OF THE WORKS.

The duty of the Works has been better than in 1861, with the exception of the Delaware Works; in this the duty has been less; however, taking the Works collectively, the duty has been much better than in 1861. A pound of coal in 1864, raised 1,144 gallons more of water one foot high than in 1861. One quart of oil raised 111,000,000 gallons more of water one foot high, than in 1861. One pound of tallow raised 620,000,000 less gallons one foot high than in 1861. This is accounted for by the amount of tallow used in the preparation of wooden cogs, to be used during the present year, in cogging all the wheels.

PIPE LAID IN THE SEVERAL DISTRICTS DURING THE YEAR.

Total number of feet laid previously	1,884,532
" " " "	36,139
Total,	1,920,671

Being a total of 368 miles, 5031 feet, of water main now laid in the City.

COST OF LAYING PIPE.

The average cost of laying pipe, was, for labor, (digging, filling, making joints, setting plugs and stops, hauling and handling pipe), 82 cents per foot; including all other expenses (making stops, fire plugs, inspecting, measuring, making bills, etc.), 62 4-10 cts per foot. The cost of labor for this work has advanced fully fifty per cent. above last year. The cost of materials: pipe, iron and brass castings, lead, etc., have also advanced. A six inch pipe (the size principally used) cost in 1862—52½ cts. per foot; in 1863—79 cts. and in 1864—$1,13 cts., about the price of the same size pipe in 1823, when it was $1 10 cts per foot. The cost of all the materials used in pipe-laying, making stops, fire plugs, &c., during the year, was $1 32½ cts per foot, and the total cost of labor, material, etc., $1 94½ cts.

The high price of labor, and the restless condition of working men, on account of the great demand for them, has made this part of the management of the department particularly difficult, but notwithstanding all this (if due allowance be made for the increased cost of labor), there has been a saving in the expense, as compared with last year.

The amount of service pipe laid during the year, was 35,867 feet—a less amount than in any other year since Consolidation. The average amount of pipe laid for the last ten years, was 61,095 feet. Seventy thousand feet of pipe per annum, will not more than supply the built and improved streets requiring service mains Councils have ordered to be laid 62 000 feet of service mains; a list of streets in which this pipe is directed to be laid.

In appropriating money for pipe, it should be borne in mind that the 600,000 feet laid in the last ten years cost the City about $200,000 including stop-cocks, fire plugs and all allowances.

The Department would recommend, that each district be furnished with a horse and light wagon—such as are used by plumbers. When the amount of business transacted by the Purveyors is considered, (each having on an average 90 miles of pipe under his charge) it will be seen that this recommendation, if carried out would effect a large saving in expense, and also facilitate business. The present mode of carrying articles for repairs, tools for drilling, &c., is by hand cart. The time saved by employing a horse and wagon would more than compensate for the expense.

RECEIPTS AND EXPENDITURES.

REVENUE.—The report of the Register, W. J. P. White, Esq., will exhibit the receipts of the Department for the year 1864. From this it will be seen, that the amount received by the Register, was $609,257 28 which, together with the receipts at the Engineer's office, from all sources, make a total of $610,112 57. The receipts for water rents have increased $48,953 13 over 1863. The receipts for water pipe were $8,486 56 less than in 1863; this is owing to the small amount laid during the year.

The gross receipts were $40,516 28 more than in 1863, this is a gratifying result, and when the expenses for the year are deducted, the net income of the works to the City will be found to be $346,123 82, being $1,203 43 above that of 1863. When the increased cost of labor and all materials is considered, it will be seen that the employees of this Department have looked to the interest of the City, in the discharge of their duties Were it not for the advanced prices, the expenses of Department would have been reduced about $40,000. There were other difficulties; owing to the unsettled condition of the country, it has been almost impossible to procure men who feel an interest in any ordinary employment.

The Department was subjected to considerable expense during the rebel raid into our State, in July and August; thirty of the employees attached themselves to the "Philadelphia City Scouts," under the command of Capt. Robert M. Evans. As they received no compensation, either from State or Government, for their services, the Committee on Water directed that their salaries and wages be continued during their absence. This company were furnished with horses and equipments by the City Authorities, and were of efficient service to the general and State Governments, in assisting in the protection of our border, and in arresting deserters and disloyal persons.

The amount paid for salaries and wages of these employees was $1,898 22.

There is $4,751 06 due the Department for work done during the year; and also pipe bills to collect, amounting to $5,825 46.

I would recommend an increase in the water rates for all buildings; half buildings, now $2 50 to $4; three-quarter buildings, now $2 75 to $5; full buildings, now $5 to $7; and water closets, now $1 to $3 This proposed change in rates would insure an additional income to the City of $136,750, as is shown by the accompanying statement:

15,000½ Buildings at	$2 50,	$37,000 00
3000¾ " "	3 75,	11,250 00
50,000 Full "	5 00,	250,000 00
5000 Water Closets	1 00,	5,000 00
		$303,250 00
15,000½ Buildings at	$4,	$60,000 00
3000¾ " "	5,	15,000 00
50 000 Full "	7,	350.000 00
5000 Water Closets	3,	15,000 00
		$440,600 00
		$303,250 00
Gain of		$136,750 00

POSSIBIE CONDITIONS OF GEOLOGICAL CLIMATE.

At a meeting of the British Association, Section C, Prof. Hennessy discussed the subject of the Possible Conditions of Geological Climate:

The author first reviewed the principal conditions of existing climate. These are the sun's intensity, the earth's position in its orbit, and the heat transmitted from the inner to the outer portions of our planet. The secondary conditions of climate were then briefly discussed; these are the conditions for the retention and distribution of heat by the earth's superficial coating, and they depend upon physical laws now tolerably well ascertained. The author referred to the possible source of changes in terrestrial temperature, adduced by Poisson, namely, that our earth, partaking of the sun's translation through space, might be alternately warmed and cooled, while passing, after the lapse of ages through regions possessing different thermal conditions. He had already criticised this speculation at a meeting of the Association in 1861, when it was appealed to by Prof. W. Thomson, of Glasgow, as a possible agent of geological importance. The author pointed out that no evidence whatever existed of variations in space temperature, unless such as might result from radiation. If the stars, like the sun, radiate heat to surrounding bodies inversely as the squares of their distances, the correspondence between this law and the law of gravitation leads to the inference that our sun could not approach so close to a star as to influence terrestrial climate to the extent required by many geological phenomena, without producing a permanent connexion between the two bodies, so that the double system would be in fact a double star. This objection could not be answered, and it has been again reproduced by a recent scientific writer. The author discusses the possible variations in the sun's intensity, flowing from the views entertained regarding the physical cause of the sun's heat. Mayer's ingenious speculation is especially noticed, whereby the sun's thermal energy is attributed to the fall of innumerable aerolites upon its surface. The heat resulting from the percussion of such bodies against a mass possessing such an overpowering gravitative action, would undoubtedly be sufficient to account for the sun's calorific power, if we admit the existence of a sufficiently large supply of these asteroids. The sun on this hypothesis is continually drawing to it numbers of these small planetary bodies, inconceivably greater than the quantity falling upon the earth. The sun's mass, volume, and surface have thus probably been increasing since remote epochs, while the earth's mean distance from the sun would be slightly diminished. This double operation would obviously tend to make the order of terrestrial temperature in time become one of increase from the earliest epochs of its existence up to the most recent,—a result not in accordance with the general conclusions derived from geological observation. Fossil aerolites should, on the other hand, be expected to be found in greatest abundance in fountains exhibiting evidences of high temperature; and the absence of all evidence of this kind shows that the speculation in question will not at least suffice to explain the changes of geological climate. The author referred to the possible effects of variations in the position of the earth in its orbit, and concludes that they have not been yet proved to be sufficient to account for the phenomena under discussion. He also briefly noticed his proofs of the stability of the earth's axis of rotation, whence he infers that changes of climate could not result from changes in the position of poles. He also referred to the confirmation of his views afforded by a subsequent proof, published by the Astronomer Royal in the Athenæum for September, 1860. The hypothesis of a nucleus of fused matter within the outer solid crust of the globe, was referred to in connexion with the observed increase of temperature in penetrating below the earth's surface. Objections to this hypothesis have been raised, from a consideration of which instructive results may be derived. Thus, in 1857, Mr. Hopkins communicated to the Association an account of his experiments on the conductive powers of different rocks, and he compared the results thus obtained with observations on the temperature of mine excavated out of rocks, such as had been made the subject of experiment. It seemed to follow, that no connexion existed between the law of increase of interior temperature and the conducting properties of the earth's crust. Hence it was concluded that the supposition of an inner nucleus of fused matter was inconsistent with observation. The author now ventures to reproduce the remarks he then made on Mr. Hopkins's communication, as these remarks have never hitherto appeared in a printed form. He describes the discontinuous and broken structure of the greater part of the rock formations composing the earth's crust, and he showed that the propagation of heat through such a mass would be considerably slower than even the extremely slow rate assigned by mathematical analysis for the case of a continous homogeneous solid. The amount of heat passing outwardly to the earth's surface through dry rocks and soil, would thus in general possess no geological importance. But if we study the actual conditions of rocky masses as revealed to us by mines, we arrive at different conclusions. The mines from which most of our facts regarding terrestrial temperature have been collected, are provided with extensive machinery for removing the rapidly accumulating waters. Many of our facts have been deduced from observations on the temperature of water gushing from artesian wells. Thermal springs, such as those of Bath, would generally arise were we to bore downwards to corresponding depths in many other localities. The constant percolation of superficial moisture tends to saturate the joints and fissures among the lower rocky beds as well as the more porous and permeable overlying strata. In water, heat is propagated upwards, not by conduction, but by the more energetic process of connexion, and, thus, while each piece of rock is bathed by water, it acquires a different temperature from what it would exhibit under the imaginary conditions of dryness and continuity. We should thus be led to expect no kind of definite connexion between the rate of increase of temperature and the conducting properties of the dry stone, although we might fairly expect to trace such a connexion between the permeability of rocks to moisture and the distribution of temperature in borings made to very great depths. A consequence of primary geological importance appears to the author to be deducible from these considerations. The consequence alluded to is deduced from the probably past condition

of the earth's crust, as inferred, not only from the hypothesis of its consolidation from a fused nucleus, but from the unquestionable evidence furnished by recent inquiries into the chemical and physical structure of rocks. The former condition of the earth's solid shell should on this supposition have been highly favorable to interchanges of temperature between its inner and outer portions especially wherever its outer surface was covered with seas and oceans. Chemical geology seems to establish the general fact, that multitudes of mineral products, previously supposed to be the results of dry fusion and solidification, have been formed under conditions where both heat and moisture were abundantly present. Metamorphic actions especially, as recently alluded to by Sir Charles Lyell, have been proved to have been produced on a vast scale by the infiltration of water. The influence which water may have thus exercised as a heat carrier is declared by Prof. Hennessy to have probably been such that the influence of conduction through the earth's crust considered as a dry solid may be regarded in comparison as insignificant. The author further considered how his views regarding hydrothermal action in the earth's crust would accelerate the cooling of the supposed interior source of heat; and he came to the conclusion, that this would take place more rapidly than we have been hitherto led to believe from the calculations of mathematicians who considered the unreal case of a dry continuous solid. He also points out that hydrothermal action unlike simple conduction, might be intermittent, while the effects of the latter follow a continuous law of diminution. The influence of the distribution of land and water in modifying the resultant effects produced by the heat received from the sun and from the earth's interior was fully considered. Reference was made to the author's essay on a portion of the same subject which appeared in 1859. In that essay the conclusion was announced that the tendency of water was upon the whole more favorable than that of and to the absorption, retention, and uniform distribution of temperature. Further physical arguments are adduced in support of this conclusion, and additional evidences furnished by reference to fossils to show that wide spread oceans filled with islands were best adapted for bringing about the conditions necessary for the existence of the beings represented by these fossils. A comparison was instituted by the author between the conclusions to which he had been thus led and the views originally developed by Sir Charles Lyell in his "Principles of Geology"—and the essay concluded with a summary of the conditions most favorable to the growth and decay of snow and glaciers in connexion with their possible development during some recent geological epochs.

CHRYSTALS OF THE HUMAN BREATH.

Professor Pepper has provided a new attraction to the Polytechnic, by a most instructive lecture on the human breath, and the exhibition of the crystals of which it is composed. Mr. Pepper explains, that philosophers had for a long time taken an interest in the analysis of the various excretæ thrown off by the lungs and the skin; the latter had solid and liquid matter in excess, and a very small proportion of gaseous fluid, while the former contained a minimum of solid and liquid substance, consisting principally of various gases. The salts in the skin excretæ had been frequently examined, but it was not till very lately that the presence of solid matter in the breath was discovered. It was known, however, from the analysis of Lehmann that the saliva contained chlorides of soda and potass, a not very volatile potash salt belonging to the butyric acid group, phosphates in very small quantity, a trace of alkaline sulphates, and sulpho-cyanide of potassium. With regard to this last he recollected a criminal case, some years since, in which a man was accused of poisoning another by means of opium, and a chemist was examined touching some liquid found in a basin, which was supposed to be colored by opium; but a chemist, who had been retained for the defence, instructed the counsel to ask whether there was not sulpho-cyanide of potossium in the saliva, and if the presence of that salt, in conjunction with a salt of iron, would not account for the color observed. The replies were affirmative, and resulted in the acquital of the prisoner. Prof. Lehman had discovered that all these salts existed in the breath. A picture was then exhibited by means of the magic lantern, showing drawings of the crystals which had been obtained from the breath of seven individuals. There were coralline-looking figures, figures marked with a diamond pattern, spongiform deposits, and several curious cruciform crystals. These the professor explained to be the forms of the salts above named, but said it must be explained that as yet we had no perfect evidence that these solid bodies had come from the lungs. We know that the common salt might be carried by the wind to a distance of four miles inland, and it seemed to him quite possible that the hot breath, rushing over the saliva, might carry out these solid matters. If we could obtain an independent access to the lungs by cutting somebody's throat we might be able to institute a test as to the fact, but he feared such an experiment could not be readily made. The illustrations as shown under magnifying powers, are exceedingly curious, and the discovery will no doubt result in some useful application to the cause of medical science.

VARIOUS SOURCES OF VEGETABLE OILS.

A very large white pea is grown near Shanghae, in China, from which oil is extracted for burning. So extensively is this article used that from Shanghae alone, £2,000,000 worth is yearly distributed over China. This leguminous plant is called teuss. There is another Chinese production called the tea oil, said to be produced from the seeds of species of the two genera, thea and camellia, which oil is nearly unknown in Europe. When fresh it is quite free from smell, of a pale yellow tint, and devoid of sediment. It resists a cold of 40°, and its density is 927. It burns with a remarkably clear white flame. This oil might prove an important article of commerce in the East, because in its properties it is superior to cocoanut oil, and the various other oils used for burning. From the leaves of the Australian eucalypte an oil can be procured of equal utility to the cajeput oil of the East. Among the various kinds of oils used in Northern Germany, especially in the kingdom of Hanover, that extracted from the nuts of the beech is deserving of notice. Beech oil does not play a prominent part in commerce, nor is it likely to do so, owing to the fact that it cannot be obtained in large quantities. The country people who collect the nuts, or who cause them to be collected, use the greater part of the oil extracted from them in their household, and dispose only of the remaining fraction. About the beginning of November the nuts are gathered, either by picking up those which have fallen to the ground, or by spreading large sheets under the trees and beating the branches with poles, so as to cause the nuts to separate from them. Twenty-five pounds of nuts yield about five pounds of oil. The oil is of a pale yellow color, and has an extremely agreeable taste. It is often adulterated with walnut oil; the latter is even sold as beech oil, and this may account for the difference of opinion respecting the quality of beech oil. The townspeople use it chiefly as salad oil; but the peasantry employ it as a substitute for butter, &c., and only when there has been a good harvest of nuts, for burning in their lamps. The husks are, after the oil has been expressed, made into cakes about nine inches square and an inch and-a half thick: these are used for combustibles.

A MATCHLESS MATCH.

Our attention (says the New York Druggist,) has recently been directed to a match of very considerable merit, for it overcomes the most dangerous feature of the phosphorescent or parlor match in common use—a too great susceptibility to ignite—and combustion can only be produced under fixed conditions. This match is called Töft's Special Security Match, which we ourselves have seen resist combustion under the most severe experiments—such as being submitted to friction on sand-paper and upon the wall, and other substances—submitted to a heat of at least two hundred Fahrenheit, trampled beneath the feet, &c., under all which circumstances the common parlor match instantly ignited, whilst the security match remained unaffected by this usage, yet when lightly rubbed upon a chemical preparation appended to its match-box, a combustion was instantly produced. The reckless manner in which the ordinary matches are thrown about the house, and thus become the toys of children, who are amused at their ready ignition, has been the cause of a frightful magnitude of mischief. According to the Fire Marshal's report in the last four years ninety-two fires have occurred through the agency of these matches, most of which have been occasioned by children, and seven by rats, involving a destruction of property amounting to $31,594. In the same period five children have been burned to death, and eight most severely injured by the same agency. We trust that after this forcible proof of the incendiary character of the ordinary match that it will be banished from the household and the security match introduced, which, although refusing to ignite under any of the circumstances that caused these ninety-two fires, yet lights with great readiness when applied to the peculiar composition attached to each box. We may add that these matches are sold at the ordinary price of the parlor match.

Iron Manufacturing Amongst the Africans.—The nodules of iron are generally smelted in the forests, and brought in a lump to the smith, who by means of stone anvils and stones as sledge-hammers, converts it into a long rod, and finally, by a hand-vice, and grease from a small pot he carries, it is tied between two posts and drawn till it becomes a thread. It is now fit, after being once heated, for being twisted neatly with the finger and thumb round a few hairs from the tail of a cow, or the thicker hair of a giraffe. In this state it is worn in rings ornamenting the anckles of men and women, fifteen of them costing one string of beads, value a half-penny, and fifteen copper or brass ones being double price. Iron hoes, adzes, grass hooks, small knives, pincers, &c., are all made up by the natives in the above rude way, and this is the extent of their knowledge in ironwork.

Internal Revenue Tax Paid by Iron and Oil.—For the U. S. Fiscal year ending June 30, 1864, the internal revenue tax collected in Pennsylvania on Iron was $955,880,97. New York paid $606,-988,49; Massachusetts, $480,180,51; and Ohio, $208,546,46. The twenty-second district of Pennsylvania, on its manufactures of iron, was taxed $212,281,98, a larger sum than was paid by any other district in the country.

ROCK AND COAL OIL.

The revenue derived from these two kinds of oil, was, $2,255,328,80. Of this Pennsylvania paid $1,335,156,56; New York, $243,430,39; Ohio $241,136,82.

Gold Mining in Australia.—Some of the companies for working gold in various parts of the colony are paying dividends at the rate of 400 and 500 per cent. upon the capital invested.

THE MINING & PETROLEUM STANDARD AND AMERICAN GAS-LIGHT JOURNAL, is published at Tribune Buildings, No. 1 Spruce st. on the 2d and 16th of every month, and is a recognised official organ of—

LIGHT, HEAT, MINING INTERESTS.

PETROLEUM, WATER-SUPPLY, AND SCIENTIFIC SUBJECTS GENERALLY.

JAMES W. BRYANT, EDITOR AND PROPRIETOR.

W. S. SHERMAN, PUBLISHER.

PROF. C. ELTON BUCK, CONSULTING CHEMIST.

SUBSCRIPTION—Three dollars per annum in advance.

ADVERTISEMENTS.—One dollar per inch in column for each insertion. Large space or long time by special contract.—Payable in advance.

☞ All communications to be addressed to "The Editor," No 1 Spruce Street, New York.

AGENTS.

NEW YORK—JOY, COE & Co., No. 1 Spruce street.

PHILADELPHIA—JOY, COE & Co., No. 441 Chesnut st. cor. 5th.

Germany.....B. WESTERMAN & Co., of New York.

Great Britain...TRUBNER & Co., 60 Paternoster Row, London.

France.....LE JOURNAL DE L'ECLAIRAGE AU GAZ, 25 Boulevard Poissonnière.

The Mining and Petroleum Standard AND AMERICAN GAS-LIGHT JOURNAL,

PUBLISHED ON 2D AND 16TH OF EVERY MONTH.

JAMES W. BRYANT, ... EDITOR.

THURSAY, MARCH 2, 1865.

BACK NUMBERS WANTED.—We want to complete our files of the Journal, the following numbers, for which we are willing to pay full price.

Vol. II—No.'s 13, 22, 24, 25, 29 and 34.
Vol. III—No.'s 40, 42, 44, 47, 48, 52 and 56.
Vol. IV—No.'s 63, 64, 67, 68, 69, 70, 72, 74, 80, 82, 83.
Vol. V.—No.'s 91, 93, 95 and 96.

Those of our subscribers who do not bind the Journal, would do us an especial favor by forwarding to us any of the above numbers. We are being constantly called upon to furnish back issues of our paper by those who value it for future reference, and we have supplied them until all of the above numbers are exhausted.

TO OUR SUBSCRIBERS.—There are a few of our subscribers who are in arrears for the current year, and to whom we have sent bills without any response, We request all who are indebted to us to remit the amount due, either in a Bank check to our order (payable anywhere), or in a post office order payable here, not having received several remittances made to us in money. And if any parties remit and do not receive acknowledgement of its receipt in due time we wish them to advise us.

We are under real obligations to Professor "C. D." for his contribution to our journal upon the subject of "Petroleum, Coal Oil, Bitumen and Asphaltum." The initials, in connection with the learned and scientific character of the article, mark the author, without further indications.

With the consent of Doct. C. M. Cresson, for 17 years the intelligent and capable manager of the Gas Works, in Philadelphia, and Col. Ambrose J. White, Engineer of the Metropolitan Gas Works in New York, we lay before our readers a most interesting and valuable private letter upon the subject of Wood Gas, which will be found in the Gas department of our present issue. We cannot to strongly commend it to all interested in the subject.

PETROLEUM AND COAL OIL, BITUMEN AND ASPHALTUM.

The first name means *Rock Oil*, as it was found centuries ago associated as now, with layers of rock. The next name implies its connection with bituminous coal or its being obtained from that coal. The next name shows its *pitchy* nature, and its root is the name of *pine*, and hence of pitch, and indicates one of its early uses. The last, Asphaltum, from the Greek, shows fully its use in early times, as a *cement*. Hence came Asphaltites, to designate the Dead Sea, because Asphaltum floated on its waters. The brick walls of Babylon were cemented by it 2000 years before our era. The Egyptians embalmed their dead with it, and Mummies show to this day the Asphaltum, or solid petroleum, by which they have been preserved. The solid petroleum and the oil so long known at Barbadoes and Trinidad, has been found at Enniskillen, C. W.; still earlier on the South and West coast of California with ponds of oil, and in Indiana, to mention no more. The petroleum, under the name of Seneca Oil, was only found on the lake of that name, and sold by the barrel in New England. The writer bought it in New Haven, Ct., in January, 1812, and has a little of it, become thick and black, on hand. The Parsees, worshippers of fire in India, used petroleum burned by wicks of fibrous Asbestos, that the object of their worship might be constant and inextinguishable. It had not come into much use till near our day, because other oils were more accessible; yet the oil was used somewhat extensively by a people only half civilised. Capt. Symes in his "Embassy to Ava," of the Birman Empire reports that in one district were five hundred and twenty wells of petroleum, which yield annually 400,000 hogsheads of Rock Oil." It must have found purchasers and have been useful; and yet, twenty years ago, who considered it of much consequence.—To day it is the *Eleventh wonder of the world!*

So great is its commercial value from its use in illumination, in machinery, and for other purposes, that the world wonders; and yet it is probably not more abundant, not more accessible, or rather, not any nearer the surface. But there were other substances which were well known, long in use and abundant enough—there was not any demand for the discovery. At length mineral coal, anthracite and bituminous coal were brought into use; illumination by gas was a desideratum, and the gas light apparatus sprung into being; Artesian wells and their structure came to be understood; the hidden treasures in peat were unfolded, and next, in the refuse coal tar; the steam engine and railroad demanded cheaper lubrication—experiment showed the variety of hydrocarbons in the crude oil, which rendered it useless for illumination, and the method of removing this great obstacle. The demand for the oil was constant and extreme. That speculation should be rampant, was natural—and fortunes made or lost, reasonable.

Before reaching this point many enquiries have been stated of very high interest Chiefly, however, they respect, ultimately, the permanence and the location of the supply. What the oil is as a substance, chemistry has spoken definitely. How is the oil produced? From vegetable or animal matter, or from both? Though each of these has been assigned, the answer is of little consequence, if true, unless one desires it in reference to present and continued formation. No one has seen any causes now in operation, by which either animal or vegetable elements may be rapidly united into this compound. As this oil is distilled from bituminous coal and from some shales, may not all our anthracite be changed bituminous coal, by the action of the slow, internal heat of the earth? This has been adopted by many, as attended with less difficulties than any other. In what rocks or formations is the oil found? The greater part in our country, and probably in most countries, is associated with the coal formation, or as Prof. Andrews states, in Portage and Chemung groups, and in the bituminous coal rocks; and the oil wells of Pennsylvania, Virginia, and Ohio are some in the one and some in the other of these. It has been found in the tertiary rocks in these States and in Wallachia and Trinidad, and sparingly in some Devonian rocks. The geological place of it is thus well ascertained.

Is the oil a local or general deposit? The evidence is in favor of the former; hence it is maintained that the oil in our country is in narrow and relatively deep cavities, with water at the bottom, and gas at the top of the oil, because of their different specific gravity, which cavities are the result of some upheaving power, and not necessarily or extensively connected—or that the oil is found permeating and stored in the coarse sand-stones of the Portage and Chemung rocks. The square miles of our huge coal fields have been ascertained with approximate certainty, as have most of foreign lands; but, with all the discoveries made, who knows to-day where to bore successfully, even in any County in Pennsylvania, which has been most examined, to a cavity or rock which will yield an abundant supply? Thousands are ready to buy the services of that man. The facts may be too deeply hidden for easy discovery. But all know that real science is founded on facts. When circumstances demand their existence, the applications are made to appear. C. D.

WOOD GAS.

MR. EDITOR:—Every effort to produce gas for illumination should be encouraged on the mere ground of economy—the poor, and the rich too, will be partakers of the benefit. In the operation and success of the method used in the evolution of this gas at Albany, all have an interest. I see not why it cannot be manufactured in abundance. But why should it be called *Wood Gas?* True, dried wood is used to *produce a vapor*, as it is called, but which is distinctly declared not to be gas, but to be converted into gas by coming into contact with "dry saw-dust, or powdered charcoal mixed with petroleum, or kerosene tar," at a high temperature. The vapor, as here called, is to be mixed with these substances in distillation, and illuminating gas is produced. As I have distilled wood, green or dry, a little oily vapor appears with considerable oxyd of carbon, the illuminating power of which is very feeble; but this is, *Wood Gas*, while the other would be gas from the distillation of *wood and petroleum*. Let us call the gas by the substances from which it is made; then, if it is good and cheap illuminating gas, let it take the high place it would merit. I would respectfully ask, whether the petroleum is not the great source of this wrongly named Wood Gas, as to its illumination?

C. D.

PHOTOGRAPHY IN NATURAL COLORS.—The Cerneau, a newspaper published at Port Louise, Mauritius, contains the following extraordinary announcement, according to Galignani:—"M. Chambay has succeeded in fixing the colors of the object. The picture is taken instantaneously, as in other kind of photography. The modelling and relief are marvellous; the blood appears to circulate beneath the skin; the color is fixed; and the portraits, which present a surprising resemblance, are equal to the finest pastels, miniature, or water-color drawings. M. Chambay is about to remove to Paris"

A NEW ENGLISH PATENT.

Apparatus for increasing the Illuminating Power of Gas, and for Producing Gas by the Vaporisation of Hydrocarbons and Essences of Petroleum. R. A. Brooman, Fleet street, London.

The apparatus herein described is intended to fulfil the purposes of a carburetter, and of a gas generator. It consists of a strong metallic vessel in the form of a double cylinder having one portion superposed, which serves as a reservoir for the petroleum or other hydrocarbon, and the lower cylinder is employed as a vaporiser.

"STEAM SUPERSEDED."—The model of a new electro-magnetic locomotive is now exhibiting at Versailles, France. Its inventors, MM. Bellet & Rouvre, assert that locomotives constructed on their

principle could travel on ordinary railroads at the rate of 124 miles an hour! The power is obtained by magnetising and de-magnetising by means of a current supplied by a fixed battery; and, it is said, only a small part of the force developed is thus utilized.

THE BULLION CROP OF 1864.—There was received, during the year 1864, at San Francisco, rom the mines of California, Oregon and Victoria, from Washoe and Mexico, the sum of $54,047,238. The amount of treasure shipped from the State during the same period, was $55,707,201
Total shipped in 1863, ... 46,071,920

Excess this year, ... $9,635,281

PETROLEUM MARKET.

Feb. 16—There has been less activity in the market for Refined since our last, but there was no inclination on the part of holders to grant any material concession in prices until Monday, when buyers held off and generally refused to operate unless at some concession, to which sellers, in order to effect sales were compelled to submit—the market closing steady and moderately active; sales to day are 500 bbls. bonded at 78 cts. free is quoted at 88 cts. The market to day closes quiet at 52 to 53 cts on the spot, and 48 cts. buyers option next month.

Feb. 18—We quote at 49 to 50 cts for Crude on the spot, and 45 cts. buyer all next month, 67 to 88 cts. for do. free.

Feb. 20—We quote at 47 cts. for Crude; 66 to 77 cts. for Refined in bond, and 87 cts. for do. free.

Feb. 21—Crude is dull, and prices are decidedly lower; we quote at 44 to 45 cts Refined are quiet at 67 cts. for bonded, and 87 cts. for free.

Feb. 22—The market heavy and prices largely decreased, closing weak at 45 to 46 cts, buyer's option March. Refined has been extremely dull; the transactions have been limited entirely to sales offered for home consumption; the receipts continue very light and the market rates are still much beyond the reach of exporters, closing dull at the following rates: Crude in bbls. per gal 44 to 45 cts. Refined, in bbls per gal. (in bond), 66 to 67 cts. Refined, in tins, per gal. (in bond), 86 and 88 cts. Refined, in bbls. per gal. (free,) 87 to 88 cts. Spirits, in bbls per gal (free), 51 to 53 cts Spirits, in tins, per gal. (in bond), 50 to 51 cts. Private advices from Titusville state that there has been a decided falling off in prices Crude is held at $ 50, and doubtless could be bought for less. Hauling to Titusville $1 25; barrels 23 25.

Feb. 24—Crude is in fair demand, but prices are easier; sales of 1,000 bbls. on the spot at 43 cts. Refined in bond is dull and heavy at 66 to 67 cts. do. free is quite firm at 87 cts

Feb. 25—Crude is dull and heavy at 53 cts. Refined are firm at 67 cts. for bonded, and 88 cts. for free.

Feb. 28—We quote Crude at 42½ to 43 cts. Refined, in bond, at 67 cts and do, free 87 cts.

March 1st—The market is still and very dull, and prices are nominal; we quote as follows: Crude, in bbls. per gal 43 to 44 cts. Refined, in bbls per gal (in bond) 66 to 67 cts. Refined, in tins, per gal. (in bond) 86 to 88 cts. Refined, in bbls. per gal. (free) 87 to 88 cts. Spirits, in bbls per gal. (free) 51 to 53 cts. Spirits, in tins, per gal. (in bond) 50 to 51 cts.

IMPORTANT NOTICE.

To ADVERTISERS.—Our paper offers a superior medium as an advertising agent, to all those who manufacture or sell machinery or appliances of any kind for Gas, Mining, Water, Sewerage, the production or purification of Oils, &c. &c., not so much on account of a wide-spread circulation, as from the fact that it goes directly to the hands of those who are constantly using and requiring machines and improvements for these branches, and who look hrough our columns for information where to procure them. The class of people who read our paper not only peruse our pages of reading matter, but read the advertisements as well, for the reason that they are directly interested in all things pertaining to their business. We therefore ask, with confidence that we can do them justice, all parties having machinery or improvements of any kind for either of the objects to which our paper is devoted, to send in their advertisements and avail themselves of these advantages. It will be observed that our terms for advertisers are very reasonable.

NEW YORK MINING EXCHANGE.

NEW YORK, March 1, 1865.

	Bid.	Asked
Copper Stocks.		
Aztec	7⅞	9
Bedford	1	1⅛
Boston	4⅛	5⅜
Caledonia, A. P.	10	12
Canada	3½	4
Carp Lake	8	5
Central	65	70
Columbian	—	24
Copper Falls	34⅛	38
Clifton	—	$1
Dacotah	—	5⅛
Derby	⅜	1⅛
Douglass	—	—
Evergreen	18⅜	20
Flint Steel River	12	13⅜
Frue	2¾	5
Grand Portage	—	—
Hancock	12⅞	14
Hamilton	—	6
Hilton	5	6
Hudson	1	2
Huron	82	83
Indiana	8⅜	9⅛
Isle Royale	20	20⅜
Keweenaw	—	6
Knowlton	7	10
Lafayette	1	2
Manhattan	—	—
Mendota	—	—
Merrimac	4⅜	5⅛
Minnesota	33	37
New York, A. P.	2	3⅜
N. J. Consolidated	4	4⅛
Norwich	—	6
Ogima	5	6¾
Ontonagon	3	4⅜
Penn	—	11⅜
Providence	1⅜	2
Quincy	96⅜	98
Reliance	1⅛	2⅛
Rockland	12⅜	14
Superior	8⅜	9
Sharon Consolidated	—	3

	Bid.	Asked
Gold Stocks.		
Benton	1	1¼
Consol'd Gregory	25	28⅞
Corydon	—	3
Gunnel	3¾	4¼
Great Western	—	8
Hope	—	9
Isaac's Harbor	⅜	⅞
Manhattan	—	9
Mariposa	44	44¼
Montana	⅛	1
New York	2⅜	3
N. Y. & Nova Scotia	⅛	1⅛
Quartz Hill	9¼	10
Quicksilver M'g Co	81	82
Rocky Mountain	—	10⅜
Smith & Parmelee	7	12
Coal Stocks.		
American	98	100
Ashburton	—	25
Central	62	65
Cumberland	61	62
Del & Hud. Canal	206	208
*Hampshire & Balt.	104	110
Pennsylvania	216	245
Lead Stocks.		
Bucks County	⅝	⅞
Clute	1⅝	1¾
Erie	—	20
Macomb	3¼	5
Plancentia Bay	1¼	1⅜
Sussex	⅜	⅞
Wallkill	3½	6
Iron Stocks.		
Copake	8	10
French Creek	⅝	1
Teal Lake	4½	6
Miscellaneous.		
Rutland Marble	17	20

* Ex. div.

FOR SALE.

The half interest in the Stock of the HAGERSTOWN GAS LIGHT COMPANY, and a four years lease of the works.

Will be sold upon terms to pay a large interest upon the investment.

Hagerstown is a thriving town in Western county, Maryland, is now the terminous of one Railroad, and will soon be of a second. For terms and for further information address. E. R. SPRAGUE,
No. 5 St. Paul street,
Baltimore.

ERIE RAILWAY.

TRAINS LEAVE FROM FOOT OF CHAMBERS STREET, VIA PAVONIA FERRY:

7.00 A. M., Day Express, for Canandaigua, Rochester, Buffalo, Salamanca and West. Connects at Buffalo with Lake Shore and Grand Trunk Railways, and at Salamanca with Atlantic and Great Western Railway.

A. M., Milk and Way Train, Daily to Otisville.

8:30 A. M., Express Mail, for Buffalo, connecting 10:0 with Lake Shore Railway.

4:00 P. M., Way Train, for Port Jervis and Newburgh.

5:00 P. M., Night Express, for Canandaigua, Rochester, Buffalo, Salamanca and West.

6:00 P. M., Lightning Express, Daily, for Canandaigua, Rochester, Buffalo, Salamanca, Dunkirk and West. Connects at Buffalo with Lake Shore and Grand Trunk Railways, and at Salamanca with Atlantic and Great Western Railway.

8:00 P. M., Emigrant Train, Daily, for Buffalo, Salamanca, Dunkirk and West.

U. S. MAIL LINE FOR CALIFORNIA,

via Panama, under convoy of a United States war steamer throughout the Atlantic voyage.

For freight or passage apply to

D. B. ALLEN, No. 5 Bowling Green

ADVERTISEMENTS.

THE PRESIDENT
PETROLEUM COMPANY.
PRESIDENT.
VENANGO COUNTY, PENN.

Organized under the laws of Pennsylvania.

OFFICERS:

President, AMORY EDWARDS, Esq., New York.
Treasurer, L. H. SIMPSON, Esq., New York.
Secretary, J. EDWIN CONANT, Esq., New York.
JOHN M. CLAPP, Esq., General Resident Superintendent.
Counsel, Messrs. PLATT, GERARD & BUCKLEY, New York.

DIRECTORS:

AMORY EDWARDS, Esq., New York
EBEN B. CROCKER, Esq., of Crocker & Warren, New York.
FLETCHER WESTRAY, Esq., of Westray, Gibbs & Hardcastle, New York.
J. M. CLAPP, Esq., President Venango County, Penn.
L. H. SIMPSON, Esq., of L. H. Simpson & Co., New York,

ITS LANDS FORM ITS
CAPITAL STOCK, - - - - - $5,000,000
IN SHARES OF $25 EACH, PAR VALUE—
SUBSCRIPTION PRICE, $5 PER SHARE.

Being in full payment for a $25 share. No further call or assessment to be made.

20,000 SHARES, OR $100,000, RESERVED FOR WORKING CAPITAL.

Parties subscribing in this Company will receive an equal amount of Stock in two other Companies adjoining, without further charge.

The lands of these companies are located on the Alleghany River, and on Hemlock Porcupine and McCrea Creeks, making an oil boring territory of over ten and a half miles in extent.

The wells on the adjoining property, known as the "Celebrated Heldricks" wells, and "Pithole Creek" wells are famous for their immense supply of oil.

The wells on this property are being sunk with great vigor, and promise large supplies of oil.

To the capitalist and to the parties of limited means unsurpassed inducements are offered. Persons investing in this Company get $5 stock and the above Bonus for each $1 invested, without further call or assessment.

Subscription books, maps, and all other information, can be obtained at the office of the Subscription Agents.

L. H. SIMPSON & CO.,
No. 54 Cedar st, New York.

No. subscriptions taken for less than one hundred dollars.

AMBROSE SPENCER GILCHRIST.
(LATE CAPT. U. S. V.)
CIVIL, MINING
AND ARCHITECTURAL ENGINEER,
No. 200 BROADWAY, Office 12.
New York.

Surveys Construction of Railroads, Canals, Water and Gas Works, Water Powers, &c, &c.

MAPS, PLANS, PROFILES, SPECIFICATIONS, AND ESTIMATES.

Mining and Architectural Engineering in all its branches.

Particular attention paid to the preperation of drawings and models, and obtaining of Patents.

FOR SALE.—One 12 Hose Horizontal Steam Engine. Address P. O. Box 781, Albany, N. Y.

TO PETROLEUM COMPANIES AND OTHERS.—A practical business man, thoroughly acquainted with the construction and operation of machinery, with much experience in the erection of factories, boring of artesian wells, and the working of Petroleum and other oils, and who is competent to make his own plans for buildings machinery, &c., would engage as agent and practical manager or join parties about engaging in the Petroleum business. Address for two weeks. PETROLEUM, care Joy, Coe & Co., Tribune Buildings, New York.

Carrington & Co.'s

GENERAL

PURCHASING AGENCY,

In Connection with all the Expresses,

No. 40 Broadway,

NEW YORK

Established 1854.

Purchases to order ANY article wanted from New York, (or from Europe,) for ladies' or gentlemen's use or wear,—comfort or luxury—from a cameo to a cashmere—a scalring to a steam-engine.

Goods purchased at current City prices, and forwarded by Express, or as directed.

Commission, Five Per Cent.

Remittances, with orders, can be made by Express if preferred, as all Express Agents will take orders, receipt for and forward funds, and see to return of Goods.

SPECIAL CIRCULAR.

The Adams Express Company, appreciating the need of a capable medium connecting with the various Express Lines, through which personal and other orders for goods from this city, can be satisfactorily supplied, do recognize CARRINGTON & CO.'S PURCHASING AGENCY as well qualified for filling orders for every description of goods wanted from New York, and commend it to the attention of the public, and of our general and local agents, recommending our agents to extend to it all reasonable aid, by facilitating the distribution of its cards and circulars, and making known the advantages it affords.

ADAMS EXPRESS CO.
By W. B. Dinsmore, Prest.
New York, June, 1864.

We cheerfully concur in the above recommendation of the Adams Express Company.

AMERICAN EXPRESS COMPANY,
By Henry Wells, Prest.
UNITED STATES EXPRESS COMPANY,
By D. N. Barney, Prest.
WELLS, FARGO & CO.,
NATIONAL EXPRESS COMPANY,
By J. A. Pullen
HARNDEN EXPRESS,
By L. W. Winchester, Supt.
KINSLEY & CO.'S EXPRESS,
By E. Littlefield, Supt.
HOPE EXPRESS COMPANY,
A. D. Hope, Supt.
BREESE & CO.'S EXPRESS,
By Stephen Breese, Supt
NEW JERSEY EXPRESS COMPANY,
By George R. Dunn, Supt.

SCHMIDLIN & DRISCOLL,

MANUFACTURERS OF

HALL, STREET & CHURCH LANTERNS,

Show Window and Street Lamp Reflectors,

135 Mercer Street,

NEW YORK.

LAFARGE, & CO.,

BROLERS,

4 Wall st., (2d floor) New York,

STOCKS, BONDS, AND OTHER SECURITIES

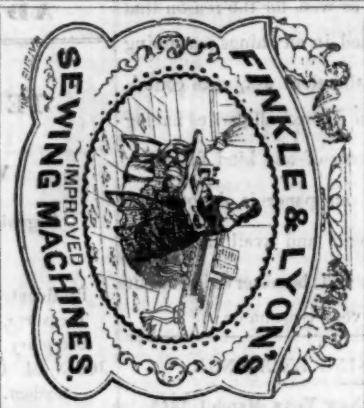
Bought & Sold.

ON COMMISSION.

LaFarge, G. I. Gerrard

S. Fulton & Co., (Successors to Colwell & Co.) Manufacturers of Pig Iron and Cast Iron Gas and Water Pipes, also Heavy and Light Castings of every description, No. 242 Pearl Water street and 206 North Wharves, Philadelphia.

SAMUEL FULTON, THEO. TREWENDT.



The Greatest Improvement yet in the Sewing Machine Art!

A CURIOSITY WORTH SEEING!

Please send for circular with sample of work.

These Improved Machines save ONE HUNDRED PER CENT of thread and silk, and make the LOCK-STITCH alike on both sides.

They require no instruction to operate perfectly, except "the printed directions."

No change in sewing from one kind of goods to another.

And no taking apart to clean or oil.

Our New Manufactory is now complete, with all its machinery and tools entirely new, and is already rapidly turning out Machines which for beauty and perfection of finish are not surpassed by any manufacture in the world.

N B.—Should any Machine prove unsatisfactory, it can be returned and money refunded.

Agents wanted in counties not canvassed by our own agents.

Finkle & Lyon S. M. Co,

No. 538 BROADWAY, NEW YORK

PUTNAM'S CLOTHES WRINGER.

IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.

No Wood-work to Swell or Split. No Thumb-screws to get out of order. Warranted with or without Cog wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $5 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*

That a *simple* machine is better than a complicated one.

That a Wringer should be *self-adjusting, durable, and efficient.*

That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.

That wood soaked in water will *swell, shrink,* and *split.*

That wood-bearings for the shaft to run in *will wear out.*

That the Putnam Wringer, with or without cog-wheels, will *not tear the clothes.*

That cog-wheel regulators are not essential.

That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.

That all who have tried it pronounce it the *best* Wringer ever made.

That it will wring a thread or a bed-quilt *without alteration*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, such there be; and we say to all, *test* Putnam' Wringer. Test it *thoroughly* with *any* and *all* others, and if not entirely satisfactory, return it

Putnam Manufacturing Co.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,
John W. Wheeler, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars*
John C. Lefferts, No. 100 Beekman St.

New York, *January*, 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any*, to buy this Wringer. It will pay for itself in a year at most.
Horace Greeley.

Prices—$8, $9, and $10.

Sample Wringers sent, express paid, on receipt of price.

Manufactured and sold, wholesale and retail, by

PUTNAM MANUF'G CO.,
18 Platt Street, New York,
Bennington, Vt.,
Cleveland O.

GAS & WATER-METERS.

JOSEPH LENNIG,

1615, 1617, and 1619 Francis St.,

Above Ridge Avenue, Philadelphia, Pa.,

MANUFACTURER OF

WET & DRY GAS METERS,

STATION, SHOW, & EXPERIMENTAL METERS,

Photometers, Pressure Registers, Indicators, and Gauges, Governor's Meter Provers, Centre Seals, Fluid Gauges, &c.

GAS APPARATUS

Of the most reliable and approved construction manufactured and on hand at the

UNION GAS METER WORKS.

H. R. WORTHINGTON'S

PATENT WATER-METER

This Meter combines

ACCURACY, SIMPLICITY, and REMARKABLE DURABILITY,

with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our largest cities.

HENRY R. WORTHINGTON,
61 Beekman steet, N. Y.

IRON FOUNDRIES.

MORRIS, TASKER & CO,

PASCAL IRON WORKS,

[ESTABLISHED 1821.]

PHILADELPHIA,

Manufacture Wrought Iron Welded Tubes for Gas, Steam or Water; Lap-Welded Boiler Flues, Galvanized Wrought Iron Tubes,

ARTESIAN WELL PIPES,

of Wrought or Cast-Iron, screwed together, flush inside and out; Gas-works Castings, Retorts and Bench Castings for Coal Gas-works,; Cast-Iron Street Mains, Bends, Branches, Drips, &c.

Gas and Steam Fitters' Tools, &c.

STEPHEN MORRIS,
THOMAS S. TASKER,
CHAS. WHEELER,
STEPHEN M. P. TASKER.

J. Vaughan Merrick, W. H. Merrick,
John E. Cope.

SOUTHWARK FOUNDRY,

FIFTH & WASHINGTON STREETS,

PHILADELPHIA.

MERRICK & SONS, Engineers,

MANUFACTURERS OF EVERY DESCRIPTION OF GAS MACHINERY.

Retorts, Bench Castings, Condensers, Washers, Scrubbers, Wet or Dry Lime Purifiers, Coke Wagons, Fire Tools, Wrought Iron Grate Bars, Gasholders, either Telescopic or Single, with Suspension Frames complete; Wrought Iron Roof Frames, for Iron or Slate; Stop Cocks, Exhausters, Steam Pumps, Boilers and Tanks, Steam or Hand Air Pumps for providing Street Mains, Centre Seals, Governors, Wrought or Cast-Iron Line Sleeves for Purifiers, Purifier Hoisting Machines, &c., &c.

Address— MERRICK & SONS,
5th and Washington Streets, Philadelphia.

POOLE & HUNT,

Baltimore, Md.,

are prepared to execute orders for

GAS-HOLDERS,

IRON-ROOF FRAMING,

And all other descriptions of

Iron Work for Gas-Works, Water-Pipes, and Heavy Castings, and Machinery generally.

SAVING OF FUEL TO PARTIES USING STEAM DAMPER REGULATORS.

Guaranteed to effect a great saving in fuel and give the most perfect regularity of power. For sale by the subscribers, who have established their exclusive right to manufacture damper regulators, using diaphragms of flexible vessels of any kind. Clark's Patent Steam and Fire Regulator Company, No. 5 Park Place, New York.

PATENT AGENCIES.

F. C. TREADWELL, Junr.,
Solicitor of Patents,
385 BROADWAY
(Moffat's Building) New York.

AMERICAN AND FOREIGN PATENT AGENCY,

Established 1838.

Letters Patent for New Inventions procured in the United States, Great Britain, France, and other countries. LEMUEL W. SERRELL,
119 & 121 Nassau St., New York.

GAS-BURNERS.

T. G. ARNOLD,

MANUFACTURER OF

GAS-BURNERS,

And Importer of Scotch Tips,

224 and 226 West 21st street,

formerly No. 447 Broome St., New York.

Mercury Cups, Portable Sockets, Burner Pillars, Burner Pliers, &c., &c.

C. GEFRORER,

Manufacturer of

GAS-BURNERS,

For Lighting and Heating Purposes.

Gas Heating and Cooking Apparatus; Fitters' Proving Apparatus, &c.

No. 111 South Eighth St., Philadelphia

GAS-FIXTURES

Mitchell, Vance & Co.

MANUFACTURERS OF

CHANDELIERS,

And every description of

GAS FIXTURES,

WAREHOUSE, No. 620 BROADWAY.

MANUFACTORY,

Nos. 835, 837, 839, 843 West 24th Street, New York.

PROTECTED WROUGHT-IRON WATER & GAS PIPE.

HYDRAULIC CEMENT SEWER PIPE,

KNIGHT & WOODWARD,

Office, Cor. Reade & Centre Sts, New York.

Sewer Pipes extensively used in Brooklyn, and now introduced in New York, Jersey City, Newark, Hartford, Albany, and other localities, from 8 to 24 inches in calibre.

Water Pipes, lined and coated with Cement mortar, ready for laying and back filling, and can be tapped like cast-iron pipes, which they excel in durability, discharge, and economy.

Factory Cor. Bond & Union sts., Brooklyn.

H. P. GENGEMBRE'S

PATENT

NON-FREEZING & NON-EVAPORATING FLUID,

For Filling Wet Gas-meters,

AND

Far Cheaper than any other Meter-fluid in use.

WARRANTED

Not to corrode tin, iron, brass, zinc, or drum-metal.

To be less injurious to wet meters that water.

Not to freeze at 20 deg ees below zero, Fah.

Not to evaporate when in use in the meters, meters once filled with it requiring no further attention whatever for years.

The summer is the proper time to fill them.

SIX YEARS OF SUCCESS!

Five years in general use in works using it, to the exclusion of all other fluid, and driving the dry meter out of use, enables us to recommend our patent with perfect confidence.

For information and references, apply to

GENGEMBRE & DOISY,

Box 1 310, Cincinnati, O

R. D. WOOD & CO.,

MANUFACTURERS OF

CAST-IRON PIPE, RETORTS, &c.

Office, 400 Chestnut Street,

PHILADELPHIA.

FOR SALE
ON MODERATE TERMS.

4 Cast-iron round Purifiers, 4 feet 6 inches diameter, cast in one piece,—also grating and covers complete.

1. 4 inch Centre Seal.
1. 4 inch Condenser.
1. 12 inches by 9 feet Washer.
1. 30 inch Station Metre.

The above have been in use for some time, but are in good condition, and are now offered for sale through want of use.

For particulars apply to
P. MUNSINGER,
GAS ENGINEER.
151 South 5th Street, Philadelphia.

THE AUBIN GAS-WORKS COMPANY,
Of Albany, N. Y.,

Now contract their works to make 10,000 feet of good Gas from 2,000 pounds of *hard* wood and 40 gallons of kerosene tar, *before payment can be demanded;* and the charcoal is worth the cost of the wood.

Many Village Gas Companies can be referred to.

D. PARRISH, Jr.,
GAS ENGINEER

And Contractor for Coal or Oil Gas-Works.
Estimates given for Gas-Works, Gas-Holders, or any Gas Apparatus.

205 1-2 Walnut st., Philadelphia, Pa.
Box 1956, Post Office.

To Manufacturers of Petroleum Gas.

For sale, Parrish's Patent Gas and Air Mixer, adapted to all works using Petroleum or other oils, by which rich Petroleum Gas is mixed, after it leaves the holder, with a proper proportion of air, giving it the greatest illuminating power, without smoke, through any burners. The apparatus being attached to the outlet pipe, requires no alteration of the works.

Apply at the Gas-Works of St. Nicholas Hotel, No. 63 Mercer st., N. Y., where one can be seen in operation; or address D. Parrish, Jr., St. Nicholas Hotel, New York city, or No. 1416 Arch street, Philadelphia.

Great Improvement
IN
Sewing Machines.
EMPIRE
SHUTTLE MACHINE!

Patented February 14th, 1860.

alesroom, 536 Broadway.

This Machine is constructed on entirely new principles of mechanism, possessing many rare and valuable improvements, having been examined by the most profound experts, and pronounced to be SIMPLICITY and PERFECTION COMBINED.

It has a straight needle, perpendicular action, makes the LOCK or SHUTTLE STITCH, which will NEITHER RIP nor RAVEL, and is alike on both sides; performs perfect sewing on every description of material, from Leather to the finest Nansook Muslin, with cotton, linen, or silk thread, from the coarsest to the finest numbert.

Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as silk, and is

PRICE OF MACHINES,
COMPLETE:

No. 1, Family Machine, with Hemmer, Feller, Gauge, Braider, & Corder, complete. - - - $60
No. 2 Small Manufacturing, with Extension Table, $75
No. 3 Large Manufacturing, with Extension Table, $85
No 3. Large Manufacturing, Leather, with Roll-Foot and Oil Cup, 100

One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

Agents Wanted in all Towns in the United States, where they are not already established. Also, for Cuba, Mexico, Central and South America, to which liberal discount will be given. Terms, invariably Cash on delivery.

T. J. ARTHUR & CO.,
536 Broadway.

NEW YORK FIRE-BRICK and Clay Retort Works. (Branch Works at Kreischerville, Staten Island.)

B. KREISCHER, office 50 Goerck street, corner Delancy street, New York.

GAS RETORTS, TILES and FIRE-BRICK of all shapes and sizes. FIRE MORTAR, CLAY, and SAND. Articles of every description made to order at the shortest notice. B. KREISCHER.

PHILADELPHIA FIRE-BRICK Works, corner of Vine and Twenty third streets, Philadelphia.

JOHN NEWKUMET,

Manufacturer of all kinds of FIRE-BRICK, GAS-HOUSE TILES, to suit all the different plans in use. Clay Retorts and Dentists' Muffles. Orders filled at short notice

---

WEST'S IMPROVED PUMPS, the most Simple, Durable, and Powerful, and the Cheapest in use.
J. D. WEST & CO.,
179 BROADWAY, N. Y.

WILCOX & GIBBS SEWING MACHINE

Is entirely noiseless.

A patented device prevents it being turned backward.

The needle cannot be set wrong.

It received the Gold Medal of the American Institute in 1863.

Insend for a circular containing full information, notices from the press, testimonials from those using the machine, &c.

JAMES WILLCOX,
Manufacturer, 508 Broadway, New York

Principal Offices:
NEW YORK—508 Broadway.
BOSTON—2-2 Washington street.
PHILADELPHIA—715 Chestnut street.
CHICAGO—183 Lake street.
CINCINNATI—70 West 4th street.
LONDON—135 Regent street.
HAMBURG—44 Hermann street.
PARIS—82 Boulevard de Sebastopol.
ST. PETERSBURGH—15 Gorochovay.
VIENNA—9 Wildpretmarket.
BRUSSELS—12 Rue Croisade.
SYDNEY, AUSTRALIA—292 Pitt street

Professor HENRY WURTZ,

FORMERLY OF THE N. J. GEOlogical Survey, Chemical Examiner in the U. S. Patent Office, etc., etc., makes CHEMICAL ANALYSES of all kinds, Examinations of MINES and MINERAL LOCALITIES CHEMICAL RESEARCHES on all subjects connected with MINING, METALLURGY, GAS, and Chemical Manufactures generally; and gives his services as a CONSULTING CHEMIST and SCIENTIFIC EXPERT on all subjects, including PATENT CASES. Refers to Dr. Torrey, U. S. Assayer, N. Y.; Prof. Silliman, Yale College; Dr. Wolcott Gibbs, and recognized men of science generally.

Prof. W. can be seen or addressed at his Office 39 Nassau street, Room No. 10.

ANALYTICAL CHEMIST
C. ELTON BUCK,
Analytical and Consulting CHEMIST,
39 NASSAU STREET, NEW YORK,

Analyses of Ores, Minerals, Soils, Guanos, Coals, &c., and Tests of Commercial Articles, carefully and promptly made. Consultations may be had, and opinions given on Chemical questions. Samples for analysis from a distance, may be sent by mail or express, directed to the Laboratory as above.

TO GAS COMPANIES.

THE UNDERSIGNED DESIRES TO undertake the supervision of several small Gas-works, to visit and examine them as often as may be necessary; to obtain and inspect their coal, castings, fire-brick, and other materials; and to manage their general business in such a manner that they shall be under such supervision as is now attainable in large works, at much increased cost. Also, to advise as general Consulting Engineer and expert in practical chemistry.

CHAS. M. CRESSON,
Late Asst. Engineer of the Philadelphia Gas-works,
417 Walnut st., Philadelphia.

DON'T FAIL TO READ THIS!

COFFEE

COFFEE! COFFEE!

EAST INDIA COFFEE CO.
154 Reade St.,

(Three doors from Greenwich St.,) NEW YORK,

Call universal attention to their

KENT'S
☞ East India Coffee,

KENT'S EAST INDIA COFFEE

Has all the flavor of OLD GOVERNMENT JAVA, and is but half the price; and also that

KENT'S EAST INDIA COFFEE

has twice the strength of Java, or any other Coffee whatever and wherever used by our first-class hotels and steamboats—the stewards say there is a saving of 50 per cent.

KENT'S EAST INDIA COFFEE

is the most healthy beverage known, and is very nutritious. The weak and infirm may use it at all times with impunity. The wife of the Rev. W. Eaves, local minister of the M. E. Church, Jersey City, who has not been able to use any coffee for fifteen years, can use

KENT'S EAST INDIA COFFEE

three times a day without injury, it being entirely free from those properties that produce a nervous excitement.

Dr. JAMES BOYLE, of 156 CHAMBERS ST., says: "I have never known any Coffee so healthful, nutritious, and free from all injurious qualities as

KENT'S EAST INDIA COFFEE

I advise my patients to drink it universally, even those to whom I have hitherto prohibited the use of Coffee.

The PRINCIPAL OF THE NEW YORK EYE INFIRMARY says: "I direct all the patients of our Institution to use, exclusively,

KENT'S EAST INDIA COFFEE,

and would not be without it on any account.

The Rev. C. LARUE, an eminent clergyman of the M. E. Church, now stationed at Halsey street, Newark, says of

KENT'S EAST INDIA COFFEE,

"I have used it nearly a year in my family, and find it produces no ache of the head or nervous irritation as in the case of all other Coffees. It is exceedingly pleasant, and I cordially recommend it to all clergymen and their families."

KENT'S EAST INDIA COFFEE

is used daily by the families of Bishop Ames, Bishop Baker, Bishop James, and many of the most distinguished clergymen and professional men in the country."

Beware of Counterfeits!

and be sure that packages are labeled

KENT'S EAST INDIA COFFEE,
154 Reade Street, New York,

as there are numerous counterfeits afloat under the name of "Genuine East India Coffee," "Original East India Coffee," etc., put forth by imposters to deceive the unwary.

In 1 lb. packages, and in boxes of 35, 60, and 100 lbs., for Grocers and large Consumers. Sold by Grocers *generally.*

Orders from Country Grocers solicited, to whom a very liberal discount will be made.

Wholesale Agents: Hoeflich & Molan, and W. J. Heiss & Bro., Philadelphia; Francis H. Perry, Providence; A. L. Waite & Co., Boston; Pynchon & Lee, Springfield, Mass.; S. N. Callender, Buffalo; Gordon McMillan & Co., Cleveland; A. A. Colter & Co., Cincinnati; J. & J. W. Bunn, Springfield, Ill.; H. B. Shields, Corydon, Ind.; and C. C. Garber, Chicago.

The Am. Adv. Agency, 308 Broadway, N. Y., will receive orders for the above named Coffee.

Business Dep., E. ALVORD. | *Correspt. Dep.,* FOWLER & WELLS.

"MAY THE BEST MAN WIN."

SAVE YOUR MONEY!

The Cheapest, most Delicious and Healthy Coffee in the World!!

LEIBIG'S ESSENTIAL
COFFEE

The most Healthy,
The most Economical,
The most delicious

PREPARATION OF COFFEE
IN THE WORLD,

OLD OR NEW.

This Coffee is prepared under a formula from the great German chemist,

PROFESSOR LEIBIG,

and gives the essential full strength and delicious flavor of OLD GOVERNMENT JAVA COFFEE, which is the only quality of Coffee used in its preparation, without any of that narcotic quality which so sadly damages the nervous system in the use of even the best grades of Coffee as ordinarily prepared.

2d. It gives the essential tonic and diuretic elements of Dandelion, without the "hereby," coarse taste so disgusting, and yet always found in the ordinary Dandelion Coffee.

It is known to all acquainted with chemistry, that the essence, or oil, or whatever name may be given it, when properly and scientifically obtained from any herb or plant, is a far different article from that produced by putting that plant into water and boiling it out—permitting the escape of the most exquisite and reliable strength and leaving the coarse and earthy drugs precipitated or in solution.

So this preparation combines the exquisite aroma of the Java Coffee, with the highest essential excellence of the most choice Dandelion—yielding the spirit without the grosser earthy body of both; thereby avoiding the deleterious effects of both and becoming at the same time

The most Delicious Beverage
AND THE
Most Health-giving and Restoring Drink

Known in the world—being at once a sovereign remedy instead of producer of

Dyspepsia and General Nervous Debility,
Flatulence, Fulness of the Head,
Dizziness, Costiveness, and
diseases of the Liver
and Kidneys,

because of its great Tonic and Diuretic qualities.

The simple fact that the preparation is from Baron Leibig, will commend it to the attention of the scientific in all parts of the country, while the use of it will at once and permanently prove to the masses everywhere that it is the long-needed desideratum—in its way.

The immense popularity of this Coffee in the Old World is an earnest that its use and popularity in America is bound to become continent wide.

Another consideration not to be overlooked in regard to the matter, is that

It Costs Less than Ordinary Green Coffee.

And requires less than half the quantity to give the same degree of strength, and its use proves it at 30 cents a pound to be cheaper than Maricaibo coffee at 15 cents a pound.

Neatly packed in pound papers, with full instructions for use on each label—in SIXTY POUND BOXES. Price, 30 cents per pound. A liberal discount to the trade.

Manufactured by the PEOPLE'S PROVISION CO., 25 Chambers street, N. Y., to whom all orders may be addressed.

Sold by wholesale Grocers and

GROVESTEEN & CO.,

PIANO-FORTE MANUFACTURERS.

499 BROADWAY, NEW YORK.

The attention of the public and the trade is invited to our New Scale Seven Octave Rosewood Piano-Fortes, which for volume and purity of tone are unrivalled by any hitherto offered in this market. They contain all the modern improvements, French, grand action, harp pedal, iron frame, over-strung bass, etc., and each instrument being made under the personal supervision of Mr. J. H. Grovesteen, who has had a practical experience of over thirty years in their manufacture, is fully warranted in every particular.

THE "GROVESTEEN PIANO-FORTE"

Received the highest award of merit over all others at the Celebrated World's Fair!

where were exhibited instruments from the best makers of London, Paris, Germany, Philadelphia, Baltimore, Boston, and New York; and also at the American Institute for five successive years, the gold and silver medals from both of which can be seen at our warerooms.

By the introduction of improvements we make a still more perfect Piano-Forte, and by manufacturing largely, with a strictly cash system, are enabled to offer these instruments at a price which will preclude all competition.

PRICES.

No. 1, Seven Octave, round corners, Rosewood Plain Case, $275.
No. 2, Seven Octave, round corners, Rosewood Heavy Moulding, $300
No 3, Seven Octave, round corners, Rosewood Louis XIV, style $325, a fac-simile of the accompaning cut.

TERMS—NET CASH, IN CURRENT FUNDS. Descriptive Circular sent free.

WEST'S IMPROVED PUMP.

Anti-Freezing, Double-Acting, Forcing, and Lifting

These Pumps have now been in general use a number of years, and give better satisfaction than any other, and are recommended as

THE BEST!

by CAPTAIN ERICSON and other eminent engineers. We can refer to thousands using them, a guarantee that all will recommend them. They are more simple in construction, and work easier and cost less than all others.

"Our readers will find the double acting, improved pump of J. D. West & Co., one of the best in the market. It is very simple, works to a charm, so that any child may use it; throws a steady continuous stream, and does not freeze in the coldest exposures, and is unusually cheap. We say this knowingly, and give the testimony of our own accord, without the knowledge or request of the proprietor."—*New York Evening Post, July 1st* 1863.

"J. D. WEST & Co.: We are pleased to state that the Pumps we had of you about a year ago, have been in constant use, twelve hours each day, and raise for the use of our woolen factory, about 130 gallons per minute. They work with but little power, compared with pumps we have used before, and do not get out of repair, and are satisfactory in all respects.

"DUNLAP MANUFACTURING CO."

Solon Robinson to the Farmers' Club. Jan. 28.

"No farmer who owns a well or cistern can possibly afford to be without an iron pump. It should be a force and suction and force pump—a perfect little fire engine—such a one known as 'West's Improved Pump.' I speak of this Pump because I happen to know it.... to be very simple, durable, powerful and cheap, and it don't freeze up, nor get out of order once a year.... I know this, and think I may be doing the farmers good by speaking of it.... A boy ten years old can work it, and throw a continuous inch-and-a-quarter stream....It can be made to work in deep wells as well as in shallow ones."

"GREAT NECK, L. I., 1860.

"I have used this Pump for one summer and winter exposed to the northwest wind coming over Long Island Sound, being the coldest possible exposure, and at no time did it freeze, nor were we unable at any time to pump water with great ease.

H. R. MCILVAIN."

"The undersigned having to use "West's Improved Pumps," cheerfully recommend them as simple, durable, and powerful in raising and throwing water, and for their ease of action, security against frost, and low price, we believe them superior to all others.

"WARREN LELAND, Met. Hotel, N. Y.
"J. W. POMEROY, Yonkers, N. Y.
"JOHN MESSEREAU, N. Y.
"DOMINICK LAWRENCE, Westchester."

From the New York Observer.

"We have had in use for months past one of West's Pumps, which has given us more satisfaction as a force and lifting pump than any we have ever used. It is one of great power, and well adapted for ship's decks, mines, factories, greenhouses, graperies, etc. *The Mining Chronicle and Railway Journal* says: 'It is recommended for its extreme simplicity of construction, great strength, and consequent durability and cheapness of repair. There is no stuffing-box—the pressure being held by a cup packing, like that upon the working-piston, working in a cylinder, fitted for the purpose within the upper air chamber—which we think a great improvement, as stuffing is so liable to be deranged and leak under strong pressure, to say nothing of the loss by friction incident thereto. It has also two air-chambers; thus the action of the valve is continued upon both sides by air—preventing water-hammer and vacuum-thump. The valves are very accessible and simply and cheaply repaired. They work much easier than any pump we have ever seen; the 4-inch cylinder being worked by children in wells 100 feet deep, and as they are extremely cheap, as well as simple and strong, we freely recommend them.'"

"CAMBRIDGE MINE, N. C., June 15, 1863.

"J. D. WEST & Co.—Gents: The Pump which I ordered for our mine is received, and put to work in our underlay shaft, which we are sinking. We find that one man will, with ease, lift 50 gallons per minute. We lifted in three and a half hours all the water in the shaft, which measures seven by twelve feet and thirty feet deep, and it was full when we commenced. It answers our expectations in every respect, and our workmen are highly pleased with it. It will do great service with but trifling expense for repairs.

"Yours, respectfully, BURR HIGGINS."

"This may certify, that I have been using, at my manufactory, for the last four years, 'West's Improved Pumps.' I now have in use three of said Pumps, one of which is kept constantly at work, 24 hours of each day (save Sundays), and has been running for the past two years. I pronounce them, unhesitatingly, the best Pumps that have been brought to my notice, having used many other previously. They are simple in their construction, and not easily disarranged.

"N. Y., Oct. 10, 1859. JAS. A. WEBB."

We have plenty more such certificates, but think these are enough. For Pumps, Hose, Pipe, etc., address or call upon

J. D. WEST & CO., 179 Broadway, New York.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway

LILLIE'S

CELEBRATED

Chilled and Wrought Iron Safes,

WROUGHT IRON FIRE-PROOFS,

LOCKS AND VAULT DOORS.

These Fire Proofs are manufactured to supply a demand for Security Against Fire, less expensive than my celebrated and superior Chilled and Wrought Iron Burglar and Fire-Proof Safes.

They furnish similar and equal security to the Safes generally manufactured in the different cities, but are SUPERIOR to them in their Fire-Proof qualities and durability, the iron being effectually protected from rust in any climate, and the Fire-proof not subject to lose its utility by age. This is an important advantage gained to the purchaser, as Safes often rust out and become worthless in two or three years.

To substantiate my position, those purchasing these Fire-Proofs are at liberty, by giving me due notice of time and place of trial, to test them by fire with any other Safe of the same size; and should they not prove superior, I will refund the money, or a new Fire-Proof, as the purchaser may decide.

LIST OF SIZES & PRICES OF WROUGHT IRON FIRE-PROOFS

No.	Outside. Height.	Width.	Depth.	Inside. Height.	Width.	Depth.	Price.
6	40	31	27	31	21	15	$150
5	34	21	26	24	21	14	125
4	31	27	25	22	18	13	110
3	30	24	24	21	15	13	100
2	28	22	23	20	14	12	75
1	24	19	20	17	11	10	50

Sample of Fire-Proof Safe at Office of the Am. Ad. Agency, 389 Broadway, N. Y.

PRICE LIST.

LILLIE'S CELEBRATED CHILLED & WROUGHT IRON SAFES.

BANK, FIRE, AND BURGLAR SAFES.
Folding Doors, D Lock.

No.	Outside. Height.	Width.	Depth.	Inside. Height.	Width.	Depth.	Price.
	In.	In.	In.	In.	In.	In.	
1—	66	50	29	54½	39	18	$950
1½	59	50	26	48	39	15	800
2	53	41	27	42¾	33	15	600

MERCANTILE F AND B SAFES.
Folding Doors and Monitor Locks.

3	50	42	27	40	32	16	$500
4	46	42	27	36	32	16	450
4½	38	46	27	28	36	16	450
5	42	38	27	31½	27½	15	350

Single Doors and M. Lock.

6	38	35	26	27½	23½	15	$250
7	34	31	26	24	21	14	200
8	31	28	24	21	18	13	175
9	30	24	24	21	15	12	140
10	26	22	22	19½	13½	12	120
11	24	20	18	17	17	10	100

HOUSE SAFES.

SIDE BOARD	$300
DINING ROOM	250
PANTRY (No. 1)	275
PANTRY (No 2)	150
DODDRIDGE BANK LOCK	100
MONITOR SAFE do.	50
SAFE do.	10

NATIONAL BANK SAFES,
With 2 Inside Burglars and 1 D and 2 M Locks.

No.	Outside. Height		Inside. Hol	Width.	Depth.	Price.
	In		In.	In	In.	
1	68		55	39	18	$1,200
2	61		48	39	18	1,050
3	57		42½	33	18	900

BANK VAULT BURGLAR SAFES,
With Folding Doors and D Lock.

0	68	53	27	64	48	20	$1,000
0½	61	58	27	55	46	20	800
1	57	47	27	49	40	20	600

BANK VAULT BURGLAR SAFES,
Single Doors and D Lock.

2	53	32	26	40	28		
3	42	36	22	38	32	19	400
4	36	31	20	32	27		
5	30	24	18	26	20	14	

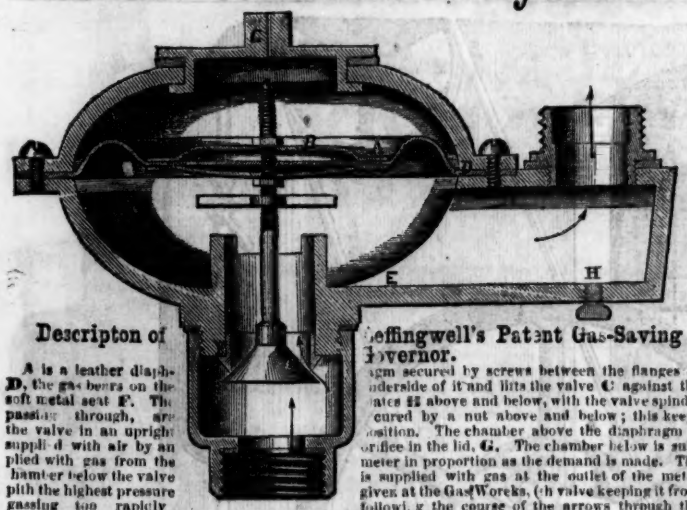
BANK VAULT DOORS AND FRAMES,
D and S Lock.

No.	Height clear.	Width clear.	Depth adjustable.	Price.	Weight.
	In.	In.	In.		
1	72	27	20	$400	3,000
2	72	27	20	275	1,500

Orders received and filled at net cash prices, by the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York. All Safes shipped from Troy free of cartage.

Business Depart., E. ALVORD. *Corresponding Depart.*, FOWLER AND WE

To Gas Consumers Everywhere.



Descripton of Jeffingwell's Patent Gas-Saving Governor.

A is a leather diaphragm secured by screws between the flanges at D, the gas bears on the underside of it and lifts the valve C against the soft metal seat F. The gates H above and below, with the valve spindle passing through, are secured by a nut above and below; this keeps the valve in an upright position. The chamber above the diaphragm is supplied with air by an orifice in the lid, G. The chamber below is supplied with gas at the outlet of the meter meter in proportion as the demand is made. The gas is supplied with gas at the outlet of the meter where the distribution pipe is connected. E is a chamber to catch the given at the Gas Works, (the valve keeping it from following the course of the arrows through the said chamber, at which point, if the drip troubles its action, a syphon is tip, H shown attached which c o .

STURGES & FROST, (MANUFACTURERS AND PROPRIETORS FOR THE UNITED STATES OF JEFFINGWELL'S PATENT GAS-SAVING GOVERNOR,) solicit attention to the above instrument which the cut represents. It will positively lessen your gas consumption **15 to 40 per cent** without diminishing, but greatly improving, the light, which is done entirely on scientific principles easily comprehended.

The above facts are demonstrated by thousands of consumers who have them in practical operation in different parts of the Union. By sending two three cent postage stamps to the proprietors, No. 9 Mechanic Street, Newark, N. J., the GAS CONSUMERS MANUAL will be sent, containing price of the above Governor, full information with regard to the waste of gas, its causes and how remedied, an almanac for the years of 1861-5-6 and 7; also, a diary suitable for any year, together with certificates and references of many who have the Governors in use.

Try it by all means, it will not fail you.

Each Governor is Warranted Perfect.

STURGES & FROST.

☞ As no QUICKSILVER is used, Gas Companies will find it to their interest to favor its adoption among their consumers.

PRINCE'S METALLIC PAINT,

AN INDESTRUCTIBLE COATING FOR

IRON, TIN, and WOOD.

It consists of seventy-two parts Oxide of Iron, and twenty-eight parts Cement Lime Stone in the one hundred pounds.

It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals, without scaling, than any other paint in use.

It is a perfect cover for all kinds of iron, tin, or wood-work, out-houses, and CANVAS COVERINGS. prevents and arrests the corrosion of metals, and is not affected by the action of salt, gases, acids or ammonia.

It hardens under water, as has been fully demonstrated by its application to gas-holders, by many of the largest gas companies in the United States; which companies having thoroughly tested its properties as herein claimed, pronounce in its favor over any other paints in the market, even though sold at double its price.

As a coating for patterns of iron or wood, when mixed with shellac, it is much superior to beeswax, oil, or shellac alone, as has been proven at the large founderies in the country.

For patching boilers and making joints, it is considered superior to red lead, or any other preparation.

For cleaning metals it takes the place of crocus, rouge, and emery, being better and cheaper.

This Paint requires no more oil than dry lead or zinc, and much less than the ordinary mineral paints. It is free from any waste, and possesses a spreading and covering power unequaled.

Terms, by the Barrel or Half Barrel, Five Cents per Pound.

A liberal discount made to parties purchasing by the ton.

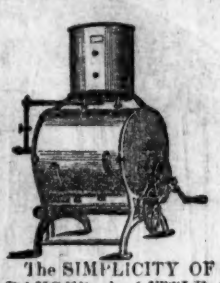
A Barrel or Ton will be forwarded to any gas companies desirous of testing its qualities, for which there will be no charge if it does not give entire satisfaction as being the cheapest and most durable of all other Paints in the market.

Also, Prince's Imperial Black Paint, and Prince's Protoxide of Iron,

DANIEL SLOAN, General Agent,
115 LIBERTY STREET, NEW YORK.

Local Agent—CALVIN GAY, 29 Doane st., Boston.

DRAKE'S
PATENT
AUTOMATIC GAS MACHINE.



THIS MACHINE, which has been in constant use for more than two years, is now acknowledged to be the

Most Convenient, Simple, and Efficient Method

OF LIGHTING BUILDINGS OF ALL KINDS, out of the reach of regular gas-works, ever brought to public notice.

The SIMPLICITY OF THE APPARATUS, its ENTIRE FREEDOM FROM DANGER, the LITTLE ATTENTION REQUIRED, the EASE WITH WHICH IT IS MANAGED, and THE CHEAPNESS and SUPERIORITY OF THE LIGHT, has gained for it the favorable opinion of those acquainted with its merits.

The Machine takes up but little room; no disagreeable odor is experienced in its use; no fire is applied to the apparatus at all; it can be attached to ordinary gas-pipes used for coal-gas, and is burned through the same kind of fixtures.

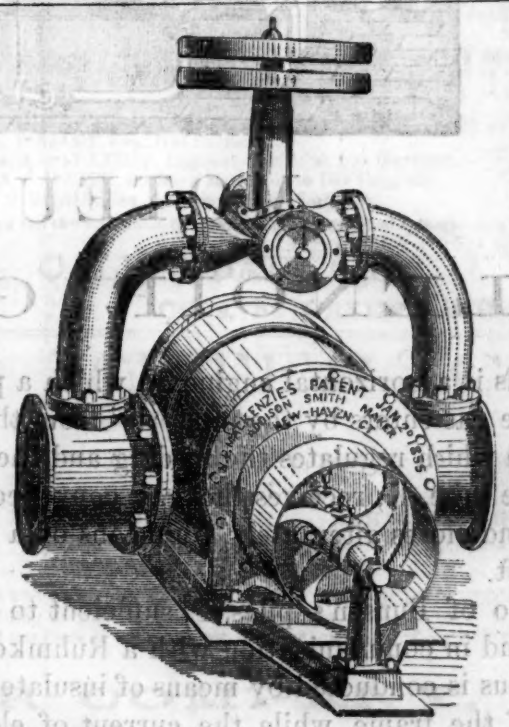
These Machines are manufactured in Boston, by the AUTOMATIC GAS-MACHINE CO., and are for sale at their Store, 78 Washington Street, Boston, and also at the Agency, MITCHELL, VANCE & CO.'s, No. 620 Broadway, New York

For further particulars, address—

MITCHELL, VANCE & CO.,
620 BROADWAY, NEW YORK CITY.

THE MACKENZIE PATENT GAS EXHAUSTER AND COMPENSATOR.

SMITH & SAYRE,
Sole Proprietors and Manufacturers of



They are made to pass from 4,000 to 150,000 cubic feet of gas per hour; will increase the production and illuminating power of the gas, and add very much to the durability of the retorts, be clay or iron. The Compensator obviates entirely the necessity of water-joints, is compact, durable, cleanly, not liable to get out of order, self-acting, quiet, and certain in its operation.

We are also sole proprietors and manufacturers of the

MACKENZIE PATENT BLOWER, PATENT CUPOLA AND SMELTING FURNACE.

The Blower is a Force Blast machine, durably built, and can be driven with one-third the power required to drive the ordinary Fan. The Cupolas are manufactured in sizes to melt from 1 ton to 20 tons per hour, will save one quarter of the time required by the old style Cupola, and 33 per cent. fuel. Address

SMITH & SAYRE, 458 Broadway, New York.

THE
STANDARD
GoldCompany
OF COLORADO.

DIRECTORS,
ROBERT BOWNE,
EDWARD WILLIS,
LIVINGSTON SATTERLEE,
ETHAN ALLEN,
S. A. BANKS,
SYLVESTER TAYLOR.

President, ROBERT BOWNE.
Secretary, F. A. MITCHEL.

MINES on FISK LODE,
BOBTAIL LODE,
GROUND HOG LODE,
ENTERPRISE LODE,
and others,

In all, 8,625 feet (linear), and large water powers and mill sites.

Capital issued, 40,000 shares, at $10 per share.

A limited number of shares are offered at the low SUBSCRIPTION PRICE (having been reserved for their customers), by

WILLIAMS & MITCHEL, 12 Wall Street.

SAFEST AND CHEAPEST SYSTEM OF INSURANCE.

WASHINGTON
INSURANCE COMPANY
172 BROADWAY,

Cor. Maiden Lane, NEW YORK.

CASH CAPITAL, - - -	$400,000.
Assets, June 1, 1864, - - -	600,000.
Scrip Dividend, 1863, - -	60 per Cent.
Scrip Dividend, 1862, - -	60 per Cent.
Scrip Dividend, 1861, - -	60 per Cent.

The Policies entitled to participate receive 75 per cent. of net Profits.

Insures Buildings, Merchandise, Furniture, Rents, Leases, against loss or damage by FIRE, and MARINE RISKS on LAKES, RIVERS and CANALS.

GEO. C. SATTERLEE, President.
HENRY WESTON, Vice Prest.
WM. K. LOTHROP, Secretary.
WM. A. SCOTT, Ass't Secretary.

SATTERLEE & CO.,
BANKERS
AND
STOCK BROKERS,
40 Exchange Pce.
NEW YORK.

G. B. SATTERLEE, H. A. BOSTWICK, H. TRACY ARNOLD, LIVINGSTON SATTERLEE.

Mining Stocks bought and sold at the Regular, Mining, Boston and Philadelphia Boards.

ALBERT H. NICOLAY,
STOCK BROKER AND
AUCTIONEER.
No. 52 William Street,
NEAR WALL ST., NEW YORK.

Special attention given to the Buying and Selling of Gas-Light Companies' Stocks.

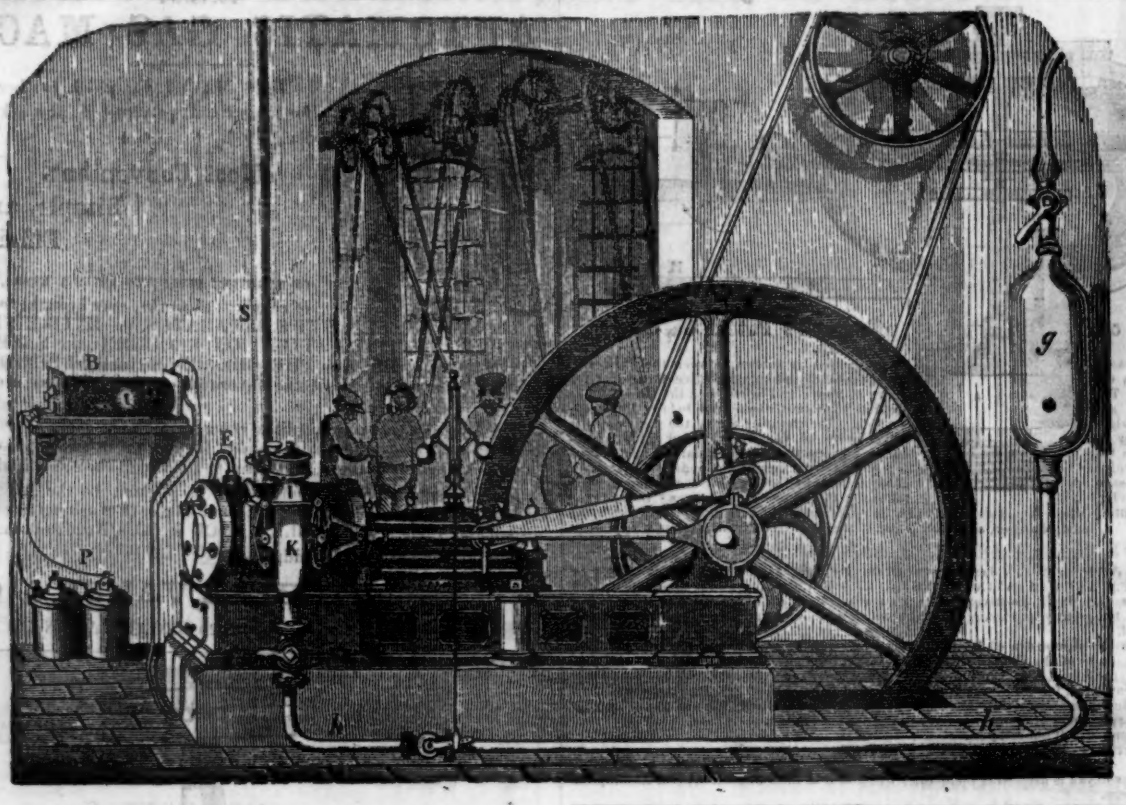
PARTICIPATION.
ÆTNA FIRE INS.
COMPANY OF NEW YORK,
NO. 170 BROADWAY.

CASH CAPITAL,	CHARTERED
$200,000.	1824.

The insured receive seventy-five per cent. of the net profits annually, without incurring any liability. When preferred, a discount will be made in lieu of participation in profits.

Scrip Dividend of 1861, - -	50 per cent.
Scrip Dividend of 1862, - -	50 per cent.
Scrip Dividend of 1863, - -	50 per cent.

JACOB BROUWER, *President.*
H. C. BEACH, *Secretary.*
WM. BARBOUR, *Asst. Sec.*



MOTEUR—LENOIR.

LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end of the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distance from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two horse and a half-horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

THE LENOIR GAS ENGINE

Requires no Fire and makes no Smoke,

No Noise, no Dirt, and is thoroughly safe.

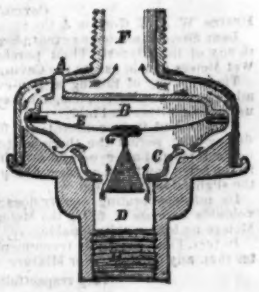
It is propelled by the expansion of Air, dilated by the combustion of Gas within the cylinder, ignited by the

ELECTRIC SPARK.

NOTICE TO GAS COMPANIES AND GAS CONSUMERS.

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SANDS, Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "

GEO. H. KITCHEN, Inspector of Gas Meters, N. Y.
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the manufactory, 52 Greene street, where they can see the operation by pressure guage and test meters.

M. L. CALLENDAR, Agent
Office, 52 GREENE STREET.

THE AMERICAN METER CO,

Organized under the General Manufacturing Laws of the State of New York.

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER.

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, accuracy, and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

512 WEST TWENTY-SECOND STREET, NEW YORK,
ARCH AND TWENTY-SECOND STREETS, PHILADELPHIA,
1 BARRETT STREET, BOSTON, will meet with prompt attention.

HARRIS & BROTHER,
PRACTICAL GAS METER MANUFACTURERS

Continue, as heretofore, at their old Establishment,

No. 1117 CHERRY ST., PHILADELPHIA,

TO MANUFACTURE

WET AND DRY GAS METERS and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works.
OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicited, and promptly attended to, by—

HARRIS & BRO.
No. 1117 Cherry st., Phila.

GEO. H. KITCHEN & CO.,
NEW PATENT
GAS APPARATUS
For Country Residences, Public Buildings, &c.,
FROM $300 UPWARDS.
EVERY DESCRIPTION OF GAS FIXTURES.
Gas Fitting in all its branches.
561 Broadway,
NEW YORK.

WORTHINGTON'S STEAM PUMPS, extensively used by Gas-Light Companies. For Sale at greatly Reduced Prices.

Also, a new and highly successful Pump, driven by water pressure, requiring no attention or repairs, and the most economical water motor yet constructed.

Patent GATES, for Water and Steam-stops.
HENRY R. WORTHINGTON,
61 Beekman street, N. Y.

GLYCERINE
FOR
Filling Wet Gas-Meters

Cheaper than Whisky or any

OTHER SUBSTANCE,

We have furnished the Cincinnati Gas and Coke Company 300 barrels Glycerin, for filling their wet meters, and are now ready to supply other Gas Companies at the lowest cash prices.

We warrant our Glycerin not to corrode the meter metal, nor to freeze at the lowest ordinary temperature, nor to evaporate.

HARTMAN & LAIST,
Manufacturing Chemists,
Cincinnati, O.
Office 64 Sycamore.
Agent in New York, Paul Balluff, 35 Maiden Lan

WOODEN PURIFYING TRAYS
PATENT
Conically Slotted Solid Wood Sieves
FOR GAS PURIFIERS.

The Conically Slotted Solid Wood Tray or sieve was patented 21st October, 1862, and all persons are cautioned against purchasing them of any other person except the subscriber. The following companies are now using these trays.

Manhattan, New York,
Metropolitan,
New York
Albany,
Troy,
Brooklyn, L. I.
Williamsburgh,
Citizens
Baltimore, Md.
Louisville, Ky.
Chicago, Ills.
Cambridge Mass
And numerous others

Orders received by mail or otherwise.
JOHN L. CHEESMAN.
147 Avenue C New York City

Glycerin for Gas Meters.

This article is superior to any fluid ever before used for Wet Meters, and we cannot better set forth its advantages than by giving the following letter from the Superintendent of the Covington Gas Co. The superiority of our Glycerin over all others in the market, for this purpose, is admitted by every Company that has used it. We have sold, the past winter, to the Cincinnati Gas-Light and Coke Co; to the Gas Companies of Covington; Ky.; Dayton, Springfield, Portsmouth, Urbana, and Piqua, Ohio Richmond, Ind., and Buffalo, N. Y., to whom we refer.

Glycerin is much cheaper than Whisky is now, or likely to be hereafter, and not evaporating, greatly increases the economy of its use.

OFFICE OF THE COVINGTON GAS-LIGHT CO.
COVINGTON, KY., Feb. 18, 1864.

MESSRS W. J. M. GORDON & Co.:

Dear Sirs,—It affords us great pleasure in testifying to the superiority of the Glycerin Fluid purchased from you for filling the Wet Meters now in use by the Covington Gas-Light Company.

The difficulty of finding a non-evaporating and anti-freezing mixture for Wet Meters, has, in my opinion, been overcome by the use of your Glycerin Fluid

I have had it in constant use for the past four months, and during that period the thermometer has ranged as low as 14° below zero, and after careful examination, I have found the fluid in the same condition as when first put in the Meters, and without the slightest discoloration.

Its non-evaporating quality does away with the hitherto unavoidable expense of filling the Meters monthly, and renders Wet Meters no longer objectionable.

In fact, I can cheerfully recommend it as being cheaper and better than any other Fluid or Mixture now in use.

Very respectfully,

S. S. STRATTON, *Sup't Cov. Gas Co.*

We have been engaged in Manufacturing Glycerin the past six years, and from our advantage in material and the large amount we make, are enabled to offer it lower than any manufacturer in this country. We will be pleased to quote prices or to give further information.

W. J. M. GORDON & BRO.,
MANUFACTURING
CHEMISTS & DRUGGISTS,
N. E. Cor. Central Avenue & Eighth St.,
Laboratory, Miami Canal, bet. Third & Fifth Sts.,
CINCINNATI, O.

ATLAS
OF THE
OIL REGIONS.

The extraordinary developments of the last few years have rendered indispensable to the community, A NEW and RELIABLE map of that portion of Pennsylvania, known as the OIL REGIONS. And such a Map, in the form of an Atlas, made from actual surveys of the whole territory (and the only surveys that have been made in the territory,) is now being prepared for publication by the undersigned, to which your special attention is invited. It will embrace the whole of VENANGO and portions of CRAWFORD and WARREN Counties, and is designed to be the most complete and perfect work of the kind ever published, showing distinctly—

1 A general map of Venango and parts of Warren and Crawford counties, Penn., and enlarged plans of each township.

2 All the original lot lines.

3 All subsequent subdivisions of lots in the oil districts, with the names of present owners or lessees.

4 All the Roads, Rivers and Creeks accurately delineated.

5 All Dwellings, Factories, Mills, Refineries, and Shops of every description.

6 Enlarged plans of all important Towns and Villages.

7 Enlarged plans of all the oil lands on Alleghany River, Oil Creek, French, Pithole, Tionesta, Hemlock and Tidioute Creeks, Cherry and Cherry Tree Runs, and all other Creeks and Runs on which discoveries of oil have been made.

8 Location and brief description of the property of all the principal Oil Companies.

9 Location and names of all the Oil Wells in the Territory.

10 A brief history of the Oil Business, from its first discovery to the present time, with valuable statistical information, making a volume of some fifty pages, about 15x18 inches, substantially bound.

A limited number of business cards pertaining to the production or sale of oil, or oil territory, will be received, and if early application be made, parties may have views of their establishments, or wells, with brief notices of the same, inserted.

The surveys for the Atlas are completed, and the proprietors intend to have it ready for delivery to subscribers (only) by about the 1st of January next.

All persons or firms desiring the work are requested to send their names as subscribers to the undersigned before the 1st of December, and designate the number of copies wanted, and the place where they wish them delivered.

F. W. BEERS & CO
43 John St., New York,
or Franklin, Penn.

Franklin, Penn, Oct. 20, 1864.

New York, April 18th, 1864.

* * * * * *

We respectfully invite your attention to and consideration of the justly celebrated and reliable remedy for DYSPEPSIA, HEARTBURN, DEBILITY and PROSTRATION. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

"GOLDEN BITTERS."

We risk nothing when we term them a *valuable preparation*, for they are one of the few articles of the present day which are not a humbug; and we are willing and able to satisfy any person or persons who will call upon us, that the celebrated "GOLDEN BITTERS" are a genuine *bona-fide hygienic* article. It is the wish of the proprietors that the virtue of the article be tested before commencing. A decision of their merits by any one who has tried them, is worth a million of purchased bogus testimonials.

For Creating a Healthy Appetite

they are invaluable, and are unequalled as a TONIC. They are mild in their action, and operate by giving *vigor* and *strength* to the system,—not by any change they produce in the solids, but through the medium of the living principle.

They are Purely Vegetable,

being composed of Gentian Root, Calamus, Sassafras, and many other remedial agents of the Vegetable world, all preserved in Jamaica Rum and Sherry Wine.

As a Beverage

They are the most *wholesome, invigorating* and *palatable* stimulant ever offered to the public. And the fact of their being prepared chemically and scientifically, precludes the possibility of a bitter, unpleasant taste, common to Bitters generally offered for sale. We especially recommend them to LADIES, and particularly to those suffering from

DEBILITY, WEAKNESS, AND PROSTRATION.

Half a wine glass of these "Bitters" three or four times a day, will produce a remarkable healthy change in persons greatly debilitated.

The "Golden Bitters" have been tried and not found wanting. They are put up in our own *Patent* quart bottles, and for sale by Druggists, Grocers, &c., throughout the world. Each bottle bears a fac-simile of the signature of Hubbel & Co.

GEO. C. HUBBEL & Co, Sole Proprietors.
CENTRAL DEPOT, American Exp. Building, New York.

THE GOLDEN BITTERS.—We are not an advocate of stimulants of an alcoholic character; indeed we deprecate this "daily tonic" idea—this "morning toddy" which we see offered in all sorts of shapes as a recuperator, invigorator, revitalizer, &c. As a rule all artificial stimulants are dangerous remedies, and must be taken into the system as you would mercury or arsenic, in very small doses. But we have had an opportunity to try the now well-advertised article known as Hubbel's Golden Bitters, and are frank to say that where the system needs building up, where a stimulant is required to aid nature in restoring a lost appetite and infusing a vigorous action to the debilitated functions, we can recommend these Bitters. Hubbel's Golden Bitters are evidently intended to improve the debilitated human system, rather than to tickle the palate, and are, therefore a harmless and safe remedy to keep in the house.—*New York Weekly Day Book.*

Cooking & Heating
BY GAS.

CHEAPRR THAN COAL OR WOOD.

The "EAGLE" Gas Heating
STOVES,

Positively guaranteed free from Smoke or Smell.

Will Heat Offices, Parlor, Dining, Sleeping, and Bath Rooms. Also,

The EAGLE Gas Cooking
STOVES & RANGES,

Will BOIL, BROIL, ROAST, BAKE, TOAST, STEW, and HEAT IRONS

The EAGLE GAS STOVES and RANGES have been in use for over Three years, and are found to be the most SIMPLE, COMPLETE and PERFECT Arrangment for HEATING and COOKING, in every respect ever invented, and to do the Work with LESS TROUBLE, in LESS TIME and at LESS EXPENSE than any Coal or Wood stove.

Their WONDERFUL NEATNESS, CONVENIENCE and ECONOMY can be seen at a glance.

WE ALSO MANUFACTURE

COAL OIL STOVES,
For Cooking and Heating.

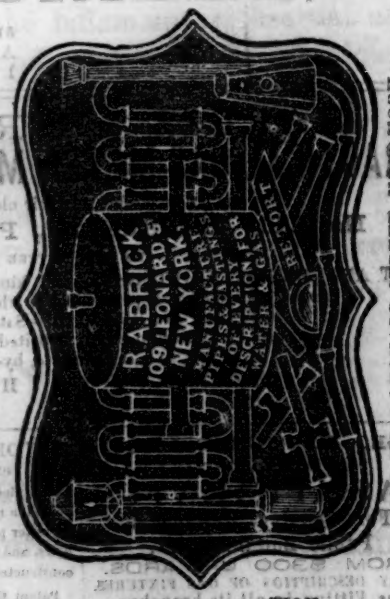
The American Advertising agency, 389 Broadway, N. Y. Bus. Dept., B. Alvord, cor. Dept., Fowler & Wells, receive orders for our stoves.

EAGLE GAS STOVE MANUFACTURING CO.
No. 474 BROADWAY, N. Y.

☞ The Company have descriptive Catalogues, which will be sent or delivered, upon application for them.

PIPES AND CASTINGS,

BERGEN IRON WORKS,



OFFICE 109 LEONARD STREET, NEW YORK.

OF EVERY DESCRIPTION.